JANUARY 6, 1950

BRITISH DENTAL JOURNAL

The Journal of the British Dental Association

(Incorporating the "Mouth Mirror" and the "Dental Gazette")

First and Third Fridays in each month

Price to non-members - 2s. per copy. Postage 3d. Annual Subscription £2 2s. post free

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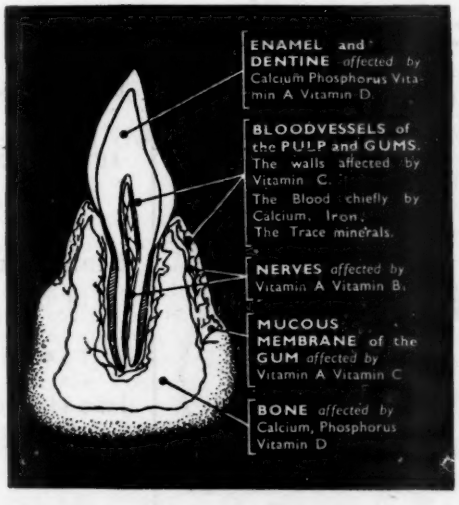
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BRITISH DENTAL JOURNAL

The Journal of the British Dental Association

VOL. LXXXVIII JANUARY 6, 1950 No. 1

NEW YEAR MESSAGES

FROM THE PRESIDENT OF THE BRITISH DENTAL ASSOCIATION

J. M. MACRAE, F.D.S. R.C.S.ENG.

To all members of the British Dental Association I send best wishes for the success of the Amalgamated Association.

The merger of the three Societies seemed impossible a few years ago, but since then conditions have altered and "sweet reasonableness" has displaced that mistrustful aloofness which divided the profession into three bodies.

Mutual concessions on the part of all three, and actual sacrifices by the Incorporated Dental Society and The Public Dental Service Association have contributed very largely to this happy solution of forming a single and larger British Dental Association. We must recognise that by going into voluntary liquidation the members of these two Societies made a gesture of considerable magnitude, and it is hoped that their action will be properly appreciated by all those who were members of the British Dental Association prior to amalgamation.

The members of the Amalgamation Drafting Committee, guided by the very able chairmanship of Mr. Hugh Linstead, reconciled the different interests of the Associations, and presented a report which gained the confidence and approval of the three memberships. They did a fine job and are to be congratulated on getting such a good result for all the hard work and long hours they devoted to what was a very difficult task.

From this welding of the profession into one Association much good should accrue; henceforth policy can be formulated by one large Association in such a way as to retain the confidence of the public and obtain our proper place in contributing to the health of the nation.

FROM THE PRESIDENT OF THE INCORPORATED DENTAL SOCIETY

R. MORGAN

IN sending greetings to all our colleagues of the new Association, from the President, Council and Members of the Incorporated Dental Society, I should like to express the thanks of the Society for the messages of goodwill, conveyed to us in terms of utmost sincerity from the President, and Council of the British Dental Association, also the Chairman, and Executive Committee of the Public Dental Service Association, and to assure them that those feelings are heartily reciprocated. There is no doubt that those messages helped to a large extent in removing any lingering doubt in the minds of some members, and resulted in the acceptance by an overwhelming majority of the resolutions in favour of Amalgamation.

It can readily be appreciated and understood that the passing of a great Society with a record of service to its members, that may have been equalled, but never surpassed, could not be made without some sacrifice. The affectionate regard we have for certain personalities, happy memories, sentimental interest, and our appreciation of the work of the early pioneers, to mention but a few, Fred Butterfield, W. F. Bowen, W. Crowthers, G. Tattersall, and many others, to our present General Secretary, Arthur Condry, made that inevitable.

I venture to think that those early, and earnest workers, would have rejoiced to see the fruits of their labours, for today we see the consummation of their endeavours to secure recognition, and equality. The march of time from those early days of fifty years ago, has seen the changing scenes from violent opposition, to tardy recognition, gradually improving until today our members are represented on every important body representing the profession, and are welcomed on terms of complete equality, for their

valued services, on the Dental Board, governmental committees, Hospital Management, and Executive Councils, and have worked in close harmony with our colleagues from kindred Associations, this unity and co-operation has been invaluable in the past. Now that amalgamation is established on a firm basis, we look forward to the future with even greater confidence. Our representatives will need to give their close attention to the wider field of preventive medicine. The dental needs of the general public under the National Health Service call for close co-operation with the Ministry of Health and local authorities in providing these services; with the support of all our members, the present difficulties will be gradually overcome.

To those who were not present at the Extraordinary General Meeting of the I.D.S. in the Victoria Halls, Southampton Row, London, I would commend the spirit of the "opposition," which, having staged a gallant fight, true to the traditions of the I.D.S., wholeheartedly supported the final resolution for Amalgamation with only three dissentients. And so in an atmosphere which had been tense, and in which emotion had stirred the hearts of many old and valued colleagues, the closing chapter in the history of an honoured Society, virile and stronger than ever before, was written.

The affectionate regard for our general secretary was shown by singing, "For he's a jolly good fellow," and the singing by all the nearly six hundred members from all parts of Great Britain with joined hands, of "Should Auld acquaintance be forgot, etc." It was a memorable occasion, and I think that it was our finest hour.

To all the members of the Amalgamation Drafting Committee, and the Chairman, we give our sincere thanks, as we do to all those who have worked so ardently in the cause of unity. It is impossible to mention all, but I hope that Mr. Harry Norman will read these lines, and accept our greetings, and acknowledgment of the good work he did in fostering goodwill and unity in the profession.

We now go forward with united strength, the new Association offers to each and every one of us opportunity to serve. We take with us able administrators, wise legislators, and I feel confident our members will give the same loyalty to the new Association as they have done to the I.D.S., and that their contribution to the common cause will be readily accepted.

To all the members of the Council, our General Secretary, Mr. Arthur Condry, and the staff at 30, Tavistock Square, together with all our members, I give thanks for their support and for many years of valued service. It is my ardent wish that they may continue to enjoy our confidence, and be happy in their association, with a wider and fuller fellowship in the new British Dental Association.

FROM THE CHAIRMAN OF THE PUBLIC DENTAL SERVICE ASSOCIATION

C. V. ARMITAGE, F.D.S. R.C.S.ENG., L.D.S.EDIN.

It is with unfeigned pleasure and steady confidence that the members of the Public Dental Service Association enter the new British Dental Association. With pleasure, because unity has been for our Association a consummation so devoutly to be desired, for so many years, that we do not dwell unduly upon our consequent extinction as a separate organisation. And with confidence, because we have always had the privilege and experience of associating with members of both the other organisations. We have been happy to regard ourselves as a bridge between those organisations—a bridge on which many members of those bodies have been able to meet and to iron out their differences. Unanimity has not always existed among us, for we have often had to reconcile conflicting opinions and policies, but understanding and concord have never been lacking. And so we have been convinced that nothing but good can come of the free association of the whole profession in one organisation.

The gradual narrowing of the gap between us has been an interesting study. It seems that it took a national emergency to supply the necessary stimulus. The mass meetings throughout the country to elect the District War Committees were landmarks. The members of those committees coming from the three organisations often met in an atmosphere of prejudice, but, as has so often been our experience, association, one with the other, rapidly dissipated that prejudice until they became committees of the utmost harmony and goodwill. That harmony was transmitted more and more throughout the Branches. Then the impact of a National Health Service stressed our community of purpose and common outlook. More and more have our respective leaders had to act together. In like manner have the science of dentistry and the profession as a whole become uppermost in our minds, and our allegiance to one or more association a matter of sentiment. Nevertheless, that loyalty to the smaller organisations has been very real. The act of contributing to their extinction has been painful. Nor would I decry that loyalty. Rather would I commend the members for their statesmanship in sacrificing that loyalty on the altar of unity. The amalgamation of a smaller body with a larger must always be an act of faith on the part

of the smaller. That faith has not been found wanting and we thus show our appreciation of those early architects of unity who, each in their turn, kept the goal before us, and finally to the members of the Amalgamation Drafting Committee for their splendid work in fashioning a plan acceptable to all. We honour those who have contributed to our amalgamation, and we trust that we, for our part, shall not be found wanting in that co-operation and understanding which are essential to a complete unity.

From time to time, many of our members have held high office in the other Associations and it is for us, a very happy omen that the President-Elect of the British Dental Association is one of our own Past Chairmen.

ORIGINAL COMMUNICATIONS

A SURVEY OF ANTERO-POSTERIOR ABNORMALITIES OF THE JAWS IN CHILDREN BETWEEN THE AGES OF TWO AND FIVE AND A HALF YEARS OF AGE

By Professor H. F. HUMPHREYS, M.B., Ch.B., F.D.S. R.C.S.Eng., and B. C. LEIGHTON, H.D.D.Glas., L.D.S.Eng.

From the School of Dental Surgery, The University of Birmingham

The survey was made possible by a grant from the Medical Research Council to one of us (Professor Humphreys) by whom the main lines of the investigation had been planned, and the necessary negotiations and arrangements carried out. The clinical examinations were conducted entirely by Mr. Leighton, and the results of a pilot investigation carried out by him, and checked in the case of a few clinics by Professor Humphreys, produced some modifications of the original plan. This is believed to be the first statistical enquiry into the ætiology of post-normal occlusion carried out on pre-school children on a sufficiently large scale to give reliable results. Indeed such a research has only been made possible by recent developments in the child welfare services.

The material has been obtained from the Maternity and Child Welfare Clinics of the City of Birmingham. Unlike most cities in this country, Birmingham has a Maternity and Child Welfare Service organised separately from the School Medical Service. The welfare centres are distributed in all parts of the city and are attended by a good cross section of the middle and poorer classes. All mothers are visited by health visitors and are encouraged to attend the appropriate clinics at regular intervals. Each centre holds a weekly " Toddlers' Clinic " to which mothers are encouraged to bring children of 1½ to 5 years of age for medical inspection and advice every three months. As the attendance is voluntary, the children examined there are not a true random sample ; they are confined to those whose mothers are sufficiently interested to attend. It was at the " Toddlers' Clinics " that the survey was made.

3,380 children were inspected. After consultation with the Medical Statistics Department of Birmingham University, it was decided to investigate in greater detail 1,000 cases—half of which were to be post-normal. This number is statistically adequate to give a high coefficient of probability and an increase in the numbers analysed would not raise this coefficient *pro rata*. The 681 post-normal cases were reduced to 500 by rejection of those that were seen in the early stages of the investigation—because the information obtained at that stage was not sufficiently complete. Therefore, 500 cases showing post-normal occlusion were investigated together with another 500 cases with normal occlusion, and 33 cases showing pre-normal occlusion were added for comparison. When an initial pilot survey of a few hundred children had been carried out it was decided to reject those under 2 years of age as the diagnosis of antero-posterior deviations was so frequently open to doubt.

The Investigation

The procedure adopted at the clinics was as follows : On arrival with the mother, each child, undressed, was measured for height and weight by the health visitor on duty. Each mother, with her child, was then interviewed by the health visitor and by the doctor. Detailed records are kept of these interviews and of the clinical examination by the doctor. The children were then inspected by one of us and after details of name and age had been noted the mouth was examined and details of occlusion, overjet and overlap of incisors, spacing of the teeth and missing teeth were recorded. The children with abnormal occlusion and those normal ones used as controls were examined further and detailed histories were obtained from the mother and from the records kept at the Centre. The mothers of these children were then examined and visits were paid to their homes to examine the occlusion of the fathers and to the schools to see the siblings (brothers and sisters). In the examination of the families of the children the

same criteria were used in assessing normal occlusion as were used for the children themselves.

Reference to previous literature on the subject of normal occlusion of the teeth in children under six years shows that the position of the mandible relative to the maxilla is not constant [1, 2, 3 and 4]. The mandible moves forward in relation to the maxilla throughout the years of early development but there seems to be no fixed rule for the rate of this forward translation. This research is statistical and the diagnosis of antero-posterior deviations of the jaws relative to each other forms its basis ; it was considered justifiable to use a definition of normality which is sufficiently wide to be applied to all cases, and to cover the normal forward movement just referred to. (Chapman [2] claims that the forward movement sometimes exceeds one half unit.)

The canines have been used as the guide to occlusion because the second deciduous molars of some

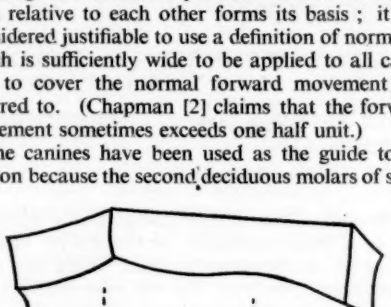

FIG. 1.—Diagrammatic drawing to show ideally normal occlusion as used for this survey.

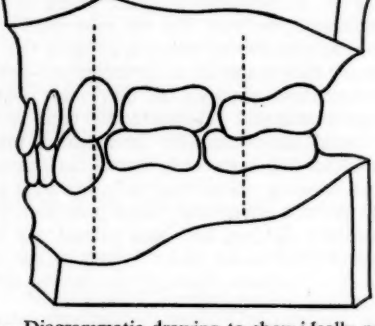

FIG. 2.—Diagrammatic drawing representing one half unit post-normal occlusion as used for this survey.

of the younger children were not erupted, but the occlusion of the second deciduous molars was recorded when present. When the tip of the upper canine was vertically above or in the same coronal plane as the distal surface of the lower canine, the case was considered the ideal normal (*see* fig. 1). As regards the second deciduous molar the occlusion was considered ideally normal when the tip of the mesio-buccal cusps of the upper molar fitted into the mesio-buccal groove of the lower molar. Unless the relationship of the canines or second molars had deviated from the above normal by at least one half unit—that is, half the antero-posterior width of the canine, or half the antero-posterior width of molar cusp—the occlusion was considered normal. If the mal-relationship of the canines was one half unit or more, then the case was classified as being post-normal or pre-normal, depending on the direction of deviation (*see* fig. 2). Cases when the canines were not erupted, or when any teeth had been extracted, were rejected and not included in any of the statistics.

Owing to the large number of cases involved, and the extent of the details recorded, it was decided that it would be necessary to make use of an electric calculating and tabulating machine in order to calculate the results of the survey. A chart was evolved after the pilot survey had been carried out, and after a series of discussions with specialists associated with the various branches of medicine and dentistry involved. It recorded 80 questions in all, this being the maximum capacity of the machine, and the number of possible answers to any one question was limited to ten.

The information obtained fell into eight categories (*a* to *h* below).

(*a*) *Personal Details of Child*.—Opinions on the signs and symptoms of mild rickets were so diverse that the survey might have been discredited by an attempt to assess rachitic tendencies. Intake of vitamins A, C and D was, however, noted and a possible deficiency was recorded when the ration of orange juice and cod-liver oil or other substitutes had not been taken for at least six months. As the diet of most children is now comparatively standardised by rationing, the time involved in collecting detailed analyses of the diet did not seem justified. The appetite of each child was recorded together with a general impression of its health and details of any illness. This information together with records of age, weight and height gave a general picture of tendencies to ill-health or malnutrition.

(*b*) *Personal Details of Mother*.—The history of the mother is recorded to disclose any condition which might affect the child, especially before birth and while being fed at the breast. The age at the time of the birth of the child, previous births, still births and miscarriages, together with details of

health during pregnancy and after the birth, are recorded.

Considerable importance was attached to the health of the mother during the pregnancy. In most of the literature on the ætiology of jaw abnormalities there is a tendency to delve further and further back into the life-history of the individual in quest of a cause [14, 21]. The logical conclusion would seem to be, in the words of H. Chapman, 1925, " That the major causes of malocclusion operate before birth and the factors are probably hereditary and antenatal " [1].

The system adopted for assessing the health of the mother during pregnancy was copied from an investigation of the Medical Statistics Department of Birmingham University. It occupied two questions on the chart, one to elicit information on the seriousness of any illness, and one to record the stage of pregnancy at which the illness occurred. The severity of the illness was assessed by asking whether it was necessary to call a doctor, whether the patient was confined to bed, or whether admittance to hospital was ordered. The pregnancy was divided into three three-monthly periods to show the stage at which an illness occurred.

(*c*) *Birth of Child.*—It has often been suggested that the effect of moulding during labour may affect the ultimate form of the face, particularly if the presentation of the infant be abnormal [14 and 16]. There is a great temptation to believe that flexion of the head, by causing pressure on the mandible, may lead to a post-normal position of the lower jaw. The questions which it was hoped might yield evidence on this point were as follows :

(i) Type of birth—instrumental, abnormal presentation or Cæsarian.
(ii) Total length of labour.
(iii) Birth-weight of infant.
(iv) Length of gestation period.

This information was obtained from the mothers, and in most cases, checked in the notes available at the welfare centres.

(*d*) *History Before Weaning.*—Many dental abnormalities have been attributed to bottle feeding as opposed to breast feeding, largely because of its mechanical effect and not because of the altered quality of the milk [21]. We included one question on the duration of breast feeding and one on the nature of food given artificially, either as a supplement to breast feeding or to replace it entirely. The method of administration of the food was also noted, whether by bottle or by spoon or by pipette. The health of the mother during the breast feeding was classified as " good," " average," or " poor." The health of the child before weaning was recorded similarly, but a footnote was added in which details of any illnesses were described.

(*e*) *Upper Respiratory Tract.*—Abnormal conditions of the nose causing nasal obstruction are widely believed to be associated with defects of the dental arches, particularly with a narrow upper arch, and often with post-normal occlusion [6, 10, 11, 12 and 13]. The latter is often said to be " secondary " to the narrow upper arch. When the survey was started it was hoped to examine the nasopharynx of each child, the condition of the nasal septum, the nasopharyngeal tonsils and the palatine tonsils. This was not carried out in full because the difficulties involved with children so young were found to outweigh the advantages of the thorough examination, and because hypertrophy of adenoid tissue would probably cause other symptoms, e.g. loss of appetite, frequent colds, coughs and perhaps nasal obstruction. The palatine tonsils were examined by the same operator in each child because it was felt that there would be less error than if several specialists examined the children. The development of the alæ nasi, the presence of mouth breathing and whether there was a tendency for the mouth to remain open were all noted, as well as the amount of fresh air the child received each day. If the child had been out in the fresh air whenever there was no rain, then it was recorded that the atmosphere in daytime was " fresh air." If the bedroom window was always open, then it was " fresh air at night." Mouth breathing was tested by applying the tongue depressor horizontally to the upper lip under the nose and then holding a wisp of down in front of the mouth, below the depressor. Condensation of vapour on the depressor was noted also as a check. As this test could only be applied at the Welfare Centre in daytime, the figures quoted in this paper on the method of breathing refer only to daytime. Each mother was, however, asked whether the child had the mouth open by night or by day, and whether there was any snoring by night. The condition of the tonsils and of the associated superficial cervical glands were recorded. The latter, when enlarged, are palpable between the distal border of the ascending ramus of the mandible and the mastoid process on each side.

(*f*) *Habits.*—Habits, particularly those involving sucking movements, have long been associated with proclination of the upper incisors, even more so by the lay public than by the profession [7, 8, 9, 23]. There is no doubt that they affect the incisors, but there was some doubt as to whether they may effect the relative position of the jaws. After the pilot survey, it was obvious that they play quite an important part. It was therefore decided to divide all sucking habits, except for the dummy, into those operating with an antero-posterior force on the incisors, and those operating with a vertical force. Because the children were so young it was possible to study these habits in operation. When there was doubt as to the effect of a habit, through its dis-

continuance or because the child could not be persuaded to demonstrate the action, and when the force was oblique—acting partly in a vertical and partly in an antero-posterior direction—then it has been accounted as being performed in both directions. It was much more difficult to assess the direction of force with a dummy because the habit had often been discontinued, and because the mothers were reluctant to produce the dummy in a welfare centre. This was due to the vigorous campaign against dummies carried out by the health visitors. It was suggested by one mother that the quality of the disc on the dummy may affect the direction of force that is applied to the teeth—a soft rubber disc permitting the teat to tilt upwards and a hard one preventing this. This has been investigated on all subsequent cases, but was omitted from the earlier cases.

An attempt was made to record the type of swallowing as outlined by R. E. Rix [24], but this proved so difficult in these young children that the results were extremely doubtful and were not included as evidence. The swallowing was stimulated by a teaspoonful of water.

(*g*) *Dental Examination.*—The occlusion of the deciduous canines and second molars was recorded, using the principles described earlier. The overbite and overjet were measured with dividers and a millimetre scale to the nearest millimetre. They were measured at the mesial border of the incisal edge of the upper central incisors. There were a few cases when the measurements differed on each side of the mouth and in these the greater measurement was taken. The overjet was estimated with the mandible in its usual position of occlusion.

Spacing of the teeth was estimated by means of a steel mixing spatula. If the spatula could be passed freely between the teeth, then a space was deemed to be present; but if it would not pass or became wedged, then no space was accounted. Only if the space was bilateral was it counted.

Details of abnormalities of the jaws other than antero-posterior abnormalities included only crossbite and narrow arches. These were estimated visually —a narrow arch being considered as such only when excessively narrow.

The tone of the lips was assessed visually. In cases of doubt the forefinger was placed between the lips, and the child encouraged to tighten the lips to prevent its entrance into the mouth. The presence of gingivitis was diagnosed by the colour of the mucous membrane and the amount of swelling present. The age of eruption of the first tooth was obtained from the mother, and checked with the records when possible.

(*h*) *Details of Examination of Family.*—The standards of abnormality for members of each family were the same as for the children. Where the canines and the first molars were lost or when there was any doubt, then the diagnosis was considered as unknown. The age and sex of the brothers and sisters were noted.

Statistical Methods

Tables have been included in this report of most of those factors which showed a "significant" difference between normal and post-normal groups, and in a few cases when an expected difference failed to be shown. In those cases when there was no appreciable difference, the relevant information is given in the text.

To assess the significance of a difference between two percentages, the standard deviation of the difference was found ; if the difference were more than twice as great as its standard deviation (expressed as $t = 2$), then it was considered significant. Expressed in another way this means that the probability of the difference between the two percentages being merely a chance one is at least one in twenty (probability $p = 1$ in 20 or 0·05) [26]. The samples are constant for most of the comparisons, that is 500 each of normal and post-normal children, and a graph (fig. 3) shows the limit of significance ($t = 2$ and $p = 1$ in 20) for any two percentages. The graph is used by reading off each percentage in the vertical and horizontal limbs. If the reading falls within the ellipse then the difference is not significant; the farther it is away from the ellipse, the more significant the difference. When the readings on the graph fall very close to the limit of significance (that is, when the probability is near to 1 in 20), then it has been worked out mathematically and is given in the text. This graph is only applicable to percentage comparison of the same factor in two samples of 500 each. It was drawn up by the Medical Statistics Department of Birmingham University.

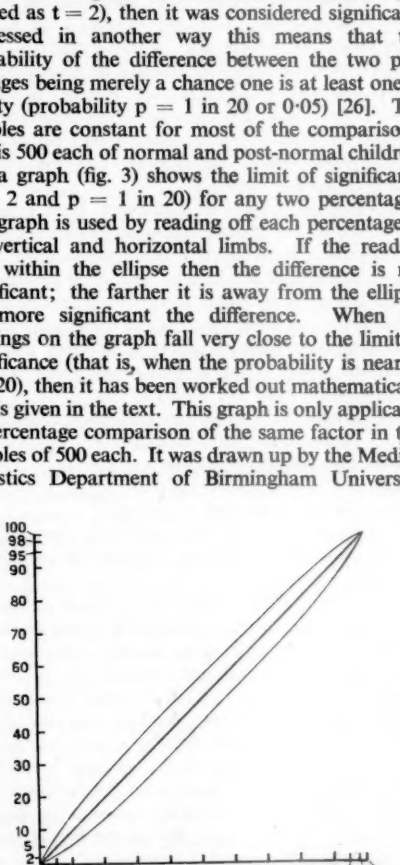

FIG. 3.—Limits of significance for percentage differences between two samples, each of size 500. $t = 2$; $p = 0{\cdot}05$; i.e. probability is 1 in 20.

In the tables given in the report, significant differences are in italics. This test of significance is a standard one, and is known as " Student's Test."

Incidence of Antero-posterior Abnormalities

Of the 3,380 children inspected, 669 were rejected —in most cases because they had insufficient teeth for a diagnosis to be made with certainty. Of the 2,711 children on whom a diagnosis was made, 681 were post-normal (25·12 per cent), and 42 pre-normal (1·52 per cent). A tentative diagnosis was made on the 669 rejected cases, of which 318 were boys and 351 were girls. 25·79 per cent of the boys, and 17·26 per cent of the girls were post-normal ; and 3·14 per cent of the boys and 3·13 per cent of the girls were pre-normal.

The 2,711 children on whom a diagnosis was made were divided into boys of whom there were, 1,346 and girls of whom there were 1,365. Of the boys 364 (27·04 per cent) were post-normal, and 22 (1·63 per cent) pre-normal. Of the girls 317 (23·22 per cent) were post-normal, and 20 (1·47 per cent) pre-normal.

Post-normality is then 3·82 per cent more frequent in boys than in girls. The standard deviation of this difference is 1·666, and the difference is 2·3 times greater than this figure. This is a significant result.

This incidence of post-normality may seem to be high, because the criteria of abnormality used for this survey are not the same as those often used in practice. Many orthodontists consider as post-normal those cases when the cusp relationship deviates by more than half a unit, because in those cases the inclined plane of the cusps will tend to emphasise the abnormality. A deviation of only half a unit, or cusp to cusp relationship, will be unlikely to deteriorate.

TABLE I.—THE PERCENTAGE INCIDENCE OF ABNORMALITY IN ALL DISTRICTS, AT VARIOUS AGE-GROUPS

(Numbers in brackets are numbers of children represented by these percentages)

A. POST-NORMAL

	Percentage of children with abnormal occlusion in each age-group (age in months)				
Sex of children	24–29	30–41	42–53	54–66	*Total*
Males	28·49% (69)	24·48% (104)	28·00% (133)	28·57% (58)	27·04% (364)
Females	21·34% (54)	24·32% (117)	22·12% (96)	25·38% (50)	23·22% (317)
Males and females ...	24·40% (123)	24·61% (221)	25·19% (229)	27·00% (108)	25·12% (681)

B. PRE-NORMAL

Males	4·38% (11)	1·68% (7)	0·6 % (3)	0·49% (1)	1·63% (22)
Females	2·37% (6)	0·83% (4)	1·84% (8)	1·02% (2)	1·47% (20)
Males and females ...	3·37% (17)	1·22% (11)	1·21% (11)	0·75% (3)	1·52% (42)

N. J. Ainsworth [17] gives an incidence of all antero-posterior deviations of 25 per cent for boys and 21 per cent for girls, using standards similar to those used for this survey, but his sample includes very few children of pre-school age. E. H. Angle [25] found an incidence of 26·6 per cent post-normality. G. Northcroft found an incidence of 28 per cent antero-posterior abnormalities in 25 children of 4½ to 5½ years of age [5].

There is a slight increase in the incidence of post-normality as age increases, whereas pre-normality decreases. This result was unexpected, particularly in view of the changes that are said to take place with age in the relationship of the jaws. The most significant difference had a standard deviation which was less than the difference itself ($t = < 1$) : this was between the ages of 2½ to 3½ years and 4½ to 5½ years. Therefore, the only inference that can be drawn from these figures is that it is unlikely that the incidence of post-normality decreases with age.

The districts in which the welfare centres are situated have been divided into three classes for comparing the incidence of normality in children with different standards of living (Table IIA and IIB). Many of the districts have a mixed population, in which case the class of the majority of the population attending the welfare centre has been used as a guide in classifying them.

The classes are :

(*a*) Good-class district—residential, fairly large houses.

(*b*) Moderate residential districts—and new Council estates.

(*c*) Poor districts and slums—in the manufacturing areas of the city.

It was considered unprofitable to divide them into more types, as the numbers would become too small to have any significance at all. In Tables IIA and IIB it will be seen that the total incidence of post-normality in the poorer homes is slightly greater (1·49 per cent) than in the better-class homes. The most striking difference (30·9 per cent as compared with 21 per cent) appears in children of 2 to 2½ years (*see* Table IIA), but owing to the small number of cases involved it cannot be considered as important.

When Tables IIA and IIB were broken down further into sexes it was found that the range of variation increased; but the numbers involved were too small to be significant.

To sum up, post-normality as defined for this research was found in about 25 per cent of children of pre-school age, and was significantly more prevalent in boys than in girls. Pre-normality was present in about 1·5 per cent of children, and was seen also slightly more frequently in boys than in girls. There is a very slight tendency for post-normality to increase as age advances, and for pre-normality to

TABLE II.—INCIDENCE OF ABNORMALITY IN THE THREE TYPES OF DISTRICT. PERCENTAGE IN BOTH SEXES

A. POST-NORMALITY

	Percentage of children in each age-group (age in months)					
Type of district	24–29	30–41	42–53	54–66	*Total without rejects*	*Rejects*
Good district	21·09% (28)	22·82% (55)	27·43% (62)	25·00% (26)	24·18% (170)	19·21%
Medium district	23·81% (65)	25·39% (115)	24·61% (126)	28·51% (63)	25·29% (369)	23·68%
Poor district	30·98% (31)	25·00% (51)	23·98% (41)	25·33% (19)	25·67% (142)	23·00%

B. PRE-NORMALITY

Good district	3·13% (4)	2·48% (6)	1·77% (4)	Nil (0)	2·00% (14)	3·88%
Medium district	2·56% (7)	0·66% (3)	0·98% (5)	1·36% (3)	1·23% (18)	3·01%
Poor district	5·83% (6)	0·98% (2)	1·17% (2)	Nil (0)	1·81% (10)	3·00%

decrease. Poorer children tend to be post-normal more frequently than those from better class homes.

Personal Details of Child

Tables IIIA and B, gives the age and sex distribution of the children in the samples : it is fairly even, except for the small number of children in the last age-group.

TABLE III.—AGE AND SEX DISTRIBUTION

(U stands for unilaterally post- pre-normal ; Bi stands for bilaterally post- pre-normal)

Age in months	*Children with normal occlusion*	*Children with post-normal occlusion*			*Children with pre-normal occlusion*	
		U.	*Bi.*	*Total*	*U.*	*Bi.*
A. MALE						
Less than 29	41	23	31	54	1	5
30–35 ...	43	9	22	31		3
36–41 ...	29	12	22	34	1	4
42–47 ...	45	21	30	51		
48–53 ...	38	18	30	38		
54–59 ...	45	10	29	39		1
60–66 ...	3	1	6	7		
Total ...	244	94	170	254	2	13
B. FEMALE						
Less than 29	45	19	25	44		9
30–35 ...	38	22	23	45	1	1
36–41 ...	34	15	25	40		
42–47 ...	43	15	21	36		3
48–53 ...	49	17	19	36	1	2
54–59 ...	41	10	9	39		1
60–66 ...	6	4	2	6		
Total ...	256	102	134	246	2	16

The replies of the mothers to questions on the health of the child since weaning indicate that the post-normal children appear to their mothers slightly less healthy than normal children or than the pre-normal child. The difference is not greater than could be accounted for by chance. When the incidence of the various illnesses that occurred during this time was examined, it was found that there was very little difference between the three groups of children.

The appetite of the post-normal group was found to be slightly poorer but again it could not be claimed as being beyond the possibility of a chance variation. Although post-normal children took orange juice, or a substitute, slightly more frequently than the normal children, there was no difference in the amount of vitamin D preparation taken. It appears unlikely that vitamin deficiency is an important factor if cod-liver oil and other preparations are considered as adequate substitutes for vitamin D from milk, butter, eggs, fish, etc.

Tables were constructed to show the correlations between the incidence of normal and post-normal occlusion on the one hand and the average height and weight of the children on the other, since the latter gave an indication of general health. The post-normal children were consistently lighter (a pound or slightly less) than normal children of the same age. They were also a little shorter (less than one inch) in most age-groups but the difference was not so constant as that of the weight. These differences were too marked to be due to chance. The increases in height and weight did not occur at a uniform rate during this growth period but showed stages of retardation most marked from 3 to $3\frac{1}{2}$ and from $4\frac{1}{2}$ to 5 years and these stages were more marked in the post-normal children, though present in both groups.

Post-normal children eat their food a little more rapidly than normal children, but the difference is small. The hardness of the food of the post-normal group was significantly greater ($p = 1$ in 100) than in the normal group : this was not expected and is difficult to explain. It certainly indicates that the exercise used in chewing hard food such as crusts has little effect on the relationship of the jaws to each other. To assess the hardness of the food, each mother was asked whether the child had some hard food such as a crust or toast to eat three times or more a day.

The general impression given by the results is that the post-normal group appears slightly weaker physically than the normal group, although their resistance to illness is not impaired in any way.

Personal Details of Mother

A table was made in which the mothers of normal, post-normal and pre-normal children were classified in age-groups. The range of variation was very similar in each group, and the average ages were 29·5, 30·3 and 31·7 respectively. There is no reason to suspect that the age of the mother at the time of the birth of the child has any bearing on our problem.

In a table made to indicate the distribution of birth ranks (order of birth in family) of children in the three groups the range of variation was again very similar in each, and the average birth rank for normal, post-normal and pre-normal groups was 1·63, 1·74 and 1·73 respectively. Similarly, there was found to be no difference in the number of

miscarriages and stillbirths that preceded each of the three groups of children. It was found also that 52·0 per cent of the normal children, 47·8 per cent of the post-normal children and 45·5 per cent of the pre-normal children were first pregnancies, i.e. not preceded by any births, stillbirths or miscarriages. This is the reverse of what might have been expected although the difference is not too great to be accounted for by chance.

TABLE IV.—INCIDENCE OF MINOR AILMENTS (FOR WHICH DOCTOR DID NOT MAKE THE PATIENT REMAIN IN BED) IN MOTHERS OF NORMAL AND POST-NORMAL CHILDREN

Trimester stage of pregnancy during which illness occurred	*Mothers of children with normal occlusion*	*Mothers of children with post-normal occlusion*
First 3/9	41 (8·2%)	59 (11·8%)
Second 3/9	42 (8·4%)	55 (11·0%)
Third 3/9	*51* (10·2%)	*75* (15·0%)

In Table IV each three-monthly period or trimester has been taken separately, and the sum of all the cases where there was any minor illness in that period is given. In the third trimester there is a significant difference between mothers of normal and of post-normal children ($t = 2{\cdot}87$, $p = 1$ in 50).

TABLE V.—INCIDENCE OF MAJOR AILMENTS (FOR WHICH DOCTOR MADE PATIENT REMAIN IN BED) IN MOTHERS OF NORMAL AND POST-NORMAL CHILDREN

Trimester stage of pregnancy during which illness occurred	*Mothers of children with normal occlusion*	*Mothers of children with post-normal occlusion*
First 3/9	34 (6·8%)	10 (2·0%)
Second 3/9	24 (4·8%)	22 (4·4%)
Third 3/9	*62* (12·4%)	*35* (7·0%)

In Table V the number of cases of serious ailments for which a doctor ordered rest in bed or hospital treatment are enumerated. In these cases the result in the first and third trimester is the reverse of that shown in the previous table. These differences are statistically significant and the only explanations the authors can put forward are that either the post-normal children had mothers who, in many cases, failed to seek or to accept treatment for these conditions, or that the rest prescribed by the doctor was beneficial to the welfare of the child and reduced the incidence of post-normality. Most of these cases rested in bed or hospital as a precautionary measure because there was a possibility of toxæmia.

Birth of Child. Labour

Table VI compares the percentage incidence of abnormalities of labour between the three groups of children. If the instrumental births and births induced artificially are added to the normal births, then the figures are uniform. An interesting point is the total absence of abnormal presentations of pre-normal children, although the number of cases is small. Another fact worthy of note is that more normal children were born by Cæsarian section than post-normal children, and if more cases had been available, this tendency might have suggested that when there is no moulding of the head by pressure during delivery a normal relationship of the arches is more likely to develop. All except three of the Cæsarian births were to mothers of 30 years or over.

TABLE VI.—LABOUR—COMPARISON OF LABOUR ABNORMALITIES

Birth conditions	*Percentage of children with normal occlusion (500 cases)*	*Percentage of children with post-normal occlusion (500 cases)*	*Percentage of children with pre-normal occlusion (33 cases)*
Normal birth ...	*76·4%*	*82·0%*	84·9%
Normal with induction	4·8%	4·0%	6·1%
Breech, without instruments	0·8%	1·0%	Nil.
Breech, with instruments	3·0%	2·6%	Nil.
Cæsarian	3·0%	1·8%	Nil.
Face presentation no instruments ...	0·4%	Nil.	Nil.
Face presentation, with instruments ...	0·2%	0·2%	Nil.
Instrumental, normal presentation ...	10·6%	7·6%	9·1%
Other	0·6%	0·6%	Nil.
Not known	0·2%	0·2%	Nil.
Sum of normal births, induced labour (with normal presentation) and instrumental birth (with normal presentation) ...	91·8%	93·6%	100·0%

The duration of labour was tabulated for each of the three groups, and it was found that there were no significant differences. The average length of labour at the birth of normal, post-normal and pre-normal children was 18·75 hours, 18·78 hours, and 18·73 hours respectively. There is thus no evidence that abnormalities of labour cause post-normality of the mandible or that abnormal presentations have any bearing on the problem.

In a table of the birth-weights it was found that the differences were not significant, the average being 7·42 lb., 7·32 lb., and 7·47 lb., for normal, post-normal and pre-normal children. The length of the gestation period was found not to vary between the three groups.

History of Suckling Period.—Feeding

The post-normal group were weaned slightlyearlier than the normal group, the average weaning age in months for normal, post-normal and pre-normal groups being 10·8, 10·4 and 11·7 months respectively. The post-normals were fed by bottle more frequently but the difference was not significant. The type of food given by bottle varied little between the groups. The health of the mothers of normal children was slightly better than that of the post-normal children.

In a table in which the duration of breast feeding was shown for each of the three possible categories of health of the mothers (good, fair or poor), it was found that the health of mothers who breast fed their children for more than twenty weeks was poorer in the post-normal group. The number of mothers involved was 390, and "t" was between two and three, a significant difference [26]. In spite of this, the health of the children of these mothers was equally good in both the normal and post-normal groups, and was better than that of the mother.

Examination of Nose and Throat

TABLE VII.—CONDITION OF ALÆ NASI

Alæ nasi	*Number of children with Normal occlusion*	*Number of children with post-normal occlusion*	*Number of children with pre-normal occlusion*
Wide	354	313	21
Narrow ...	*145* (29·0%)	*187* (37·4%)	11
Not known	1		1

The alæ nasi of post-normal children were narrower than those of normal children—and the figures substantiating this statement were significant (Table VII).

TABLE VIII.—CONDITION OF MOUTH AT REST

Mouth position	*Number of children with normal occlusion*	*Number of children with post-normal occlusion*	*Number of children with pre-normal occlusion*
Open asleep and awake	*73* (14·6%)	*115* (23·0%)	6
Open asleep, closed awake	54	44	4
Closed asleep, open awake	52	42	2
Closed asleep and awake	320	299	20
Not known	1		1

TABLE IX.—BREATHING

Breathing	*Number of children with normal occlusion*	*Number of children with post-normal occlusion*	*Number of children with pre-normal occlusion*
Breathing through nose...	396	391	26
Breathing through mouth—snoring ...	3	1	
Breathing through mouth—no snoring		2	
Breathing through both—snoring	27	38	2
Breathing through both—no snoring	74	68	5

The mouths of post-normal children were left open both night and day more frequently than those of normal children though more of the latter leave their mouths open during *either* the day *or* the night (Table IX). In spite of this fact, post-normal children do not mouth-breathe appreciably more. It will be seen in Table IX that only 6 children out of 1,033 were found to be breathing solely through the mouth. In nearly half of those cases when the mouth was left open, breathing was taking place *only* through the nose. In those cases when there was snoring there can be little doubt that the mouth was being used for breathing at night, but in those cases when there was no snoring it is possible that the mouth was not used for breathing even at night time.

TABLE X.—ATMOSPHERE IN WHICH CHILD LIVES

Atmosphere	*Number of children with normal occlusion*	*Number of children with post-normal occlusion*	*Number of children with pre-normal occlusion*
Fresh air always ...	409 (81·8%)	380 (76·0%)	25
Fresh air at night only	63	66	5
Fresh air in day only...	16	29	
Fresh air only occasionally	*12* (2·4%)	*25* (5·0%)	3

TABLE XI.—CONDITION OF PALATINE TONSILS

Condition of tonsils	*Number of children with normal occlusion*	*Number of children with post-normal occlusion*	*Number of children with pre-normal occlusion*
Enlarged, but clean ...	109	116	9
Enlarged and septic ...	46	48	2
Normal size, but septic	9	4	
Normal	*309*	*300*	21
Not known	8	14	1
Removed	19	18	

TABLE XII.—SUPERFICIAL CERVICAL GLANDS AT ANGLE OF MANDIBLE

Condition of glands	*Number of children with normal occlusion*	*Number of children with post-normal occlusion*	*Number of children with pre-normal occlusion*
Normal	269 (53·8%)	231 (46·2%)	21
Slightly palpable ...	197	220	11
Enlarged	34	49	1

More children of the post-normal than of the normal group were allowed fresh air only occasionally (Table X), and the difference is significant ($t = 2{\cdot}18$, $p = 1$ in 30). This table is interesting because of the views of Dr. J. Sim Wallace [6], who maintains that a warm atmosphere at night and fresh air by day are beneficial.

It was found that the palatine tonsils were not enlarged more frequently in the post-normal than in the normal group (Table XI). On the other hand it is significant that enlargement of the superficial cervical gland behind the ramus of the mandible was present more frequently in the post-normals ($t = 2{\cdot}40$, $p = 1$ in 60). This suggests a correlation between post-normality and infection of the throat, and not between post-normality and the size of the tonsils.

The general picture then of a post-normal child is of one with a tendency to poorly developed alæ nasi, to keep the mouth open—although they do not tend to mouth breathe more frequently than the average child—and to infection of the throat and tonsils without more tonsillar enlargement than the average. All this may arise from the lack of fresh air that the child received compared with the normal child (Table X).

Habits

More post-normal children used dummies than did normal children and when the duration of the habit is examined it is seen that the post-normal children persisted with it much longer (Table XIII ($p = 1$ in 35)). About half of the mothers whose children had used dummies were asked whether the disc of the dummy was hard or made of rubber. Their replies were tabulated, and it was found that there was no reason to suspect that this affected the relationship of the jaws.

TABLE XIII.—USE OF DUMMY AND DURATION OF HABIT

Duration of habit in months	*Number of children using dummy*			
	No.	*Occasionally*	*Yes*	*Total*
A. Normal Children				
Less than 6 ...		2	47	49
7–12		2	43	45
13–24			21	21
25–48		1	6	7
49–72				
More than 72 Still active ...			*6* (1·2%)	6
Not applicable	*372*			372
B. Post-normal Children				
Less than 6 ...		6	36	42
7–12		1	34	35
13–24			41	41
25–48			14	14
49–72				
More than 72 Still active ...			*28* (5·6%)	28
Not applicable	*340*			340

The correlation between sucking habits with an antero-posterior force and post-normality is very marked (Table XIV). Twice as many post-normal children sucked their digits with an antero-posterior force as did normal children, and there can be no doubt of this correlation. When the duration of the habit was examined it was found that it was longest in the post-normal group.

TABLE XIV.—SUCKING OF DIGITS, CLOTHING, ETC. WITH ANTERO-POSTERIOR FORCE EXCLUDING USE OF DUMMY

Performance of habit	*Number of children with normal occlusion*	*Number of children with post-normal occlusion*	*Number of children with pre-normal occlusion*
No.	*400*	*309*	30
Occasional	8	8	
Habitual	*92* (18·4%)	*183* (36·6%)	3

As regards sucking habits with a vertical force, the position is reversed (*see* Table XV), although the differences are less significant.

TABLE XV.—SUCKING HABITS (EXCEPT DUMMY), USING VERTICAL FORCE

Habit	*Number of children with normal occlusion*	*Number of children with post-normal occlusion*	*Number of children with pre-normal occlusion*
No.	401	429	27
Occasionally	6	4	1
Yes	93 (18·6%)	67 (13·4%)	5

Habitual use of the teething ring was commoner in the normal group. The type of swallowing, as mentioned earlier, was difficult to assess in these very young children. The figures obtained did suggest that an infantile type of swallow is more commonly seen in post-normality but it may possibly be a result rather than a cause.

Fewer children of the post-normal group (28·8 per cent) slept on the back than normal children (34·6 per cent) and more of them slept crouched on all fours (9 per cent and 5·4 per cent), their knees drawn up under the stomach. These differences are only just significant ($p = 1$ in 26). The numbers of children who slept in other positions were very similar in each group.

There is a correlation between the hand on which sucking takes place and the side of the mouth affected in unilaterally post-normal cases. Of those cases of post-normality on the right side only, about whom information was available, twice as many sucked the right hand as the left: but of those cases when the left side was affected, equal proportions sucked the right and left hands. Comparison with the normal children shows that post-normality results much more frequently from those cases when the right hand is used, the difference being 3·52 times the standard deviation. This is not unexpected as the right hand, being usually the stronger, would be more active in causing a deformity than the left.

To sum up: although many normal children have sucking habits, there is a strong correlation between a vertical force on the incisors and normal occlusion, and between an antero-posterior force and post-normal occlusion. But the number of children who sucked with an antero-posterior force on the incisors and still had normal occlusion suggests that another factor is involved, the resistance of the jaw to displacement which varies from one child to another. It is possible that the position of the mandible in relation to the maxilla determines the direction of the force applied to the incisors and that the sucking habit merely emphasises a condition that was already present at birth. For it is obviously easier to apply antero-posterior force if there be some pre-existing post-normality. If this be the case, then the sucking habit may easily turn the scales against the recovery of a very slight post-normality.

Further research starting with infants at birth and following them up would be necessary before this problem could be solved.

Oral Examination

Both of the upper deciduous second molars had erupted in 455 normal and 439 post-normal cases: both of the lower deciduous second molars had erupted in 436 each of the normal and post-normal cases.

As would be expected, the post-normal group showed a greater variability of overbite of the incisors and the number of cases where the bite was open anteriorly was much greater (11·6 per cent to 4·6 per cent in the normals). A similar disproportion was revealed in the number of cases where there was an overbite of more than 3 mm. (53·6 per cent post-normal and 33·6 per cent normal.) The open bite cases were almost all associated with sucking habits, usually dummies. In fact an open bite at this age may be said to be pathognomonic of a sucking habit.

The overjet of the incisors was very significantly greater in the post-normal group: there were 73·8 per cent of the post-normals and 15·0 per cent of the normals with an overjet of more than 3 mm.

The spacing of the teeth was greater in the normal group of which only 8·6 per cent had no spaces at all in the upper jaw and 15·8 per cent no spaces in the lower jaw. The corresponding figures for post-normals were 20·68 and 29 per cent. When the children were divided into age-groups it was found that the spaces between the molars tended to close at about 3 to 4 years in both, and those in the incisor region increased as age advanced.

There was a definite tendency for the post-normal and pre-normal groups to contain more cases of a narrow upper arch than the normals. If cases of crossbite may be considered as being a sign thereof then 2 per cent of the normal and 7 per cent of the post-normal group had a narrow upper arch; this difference is very significant (p = 1 in 1,000).

As regards the association of gingivitis with the resting position of the lips, it was found that there were significantly more cases in the post-normal group, when the lips were apart.

The lip tone of the normal group was significantly better, 29·8 per cent of the normals and 20·6 per cent of the post-normals having good lip tone.

The age at which the first deciduous tooth erupted is similar in the two groups of children.

The post-normal cases then had a tendency to deviate from the normal overlap, to have an excessive overjet of the incisors and a narrow upper jaw. The poor lip tone and tendency for the lips to be parted, together with the possibility that the swallowing reflex is abnormal, suggest that poor muscle tone and lack of correct function contribute to deterioration in the proper relationship of the jaws.

Examination of Parents and Siblings

A diagnosis could be made on only about half of the fathers and three-quarters of the mothers so that the results are less significant than they might be, though still suggestive. The reasons for the lack of information were either the absence of the parent or the loss of his or her teeth, and it is possible that premature loss of the teeth may be induced by an abnormal relationship of the jaws. Two calculations were made, first by including undiagnosed parents as all having normal occlusion and then as all having post-normal occlusion. It was found that the incidence of post-normality was always higher in the parents of post-normal children than in those of normal children.

TABLE XVI.—INCIDENCE OF POST-NORMALITY IN PARENTS

Excluding those who were rejected or were not seen
(Numbers in brackets are numbers of cases represented by percentage)

	Relationship of jaws of parents	*Percentage of abnormality in parents of normal children*	*Percentage of abnormality in parents of post-normal children*	*Percentage of pre-normality in parents of pre-normal children*
Fathers	Normal ...	68·0% (187)	61·2% (143)	71·4% (10)
	Post-normal	*29·8%* (82)	*37·6%* (88)	14·3% (2)
	Pre-normal	2·2% (6)	1·3% (3)	14·3% (2)
Mothers	Normal ...	62·2% (243)	54·7% (185)	59·1% (13)
	Post-normal	*34·6%* (135)*	*44·7%* (151)*	40·9% (9)
	Pre-normal	3·3% (13)	0·6% (2)	Nil

*t = 2·80.

TABLE XVII.—INCIDENCE OF POST-NORMALITY IN SIBLINGS OF NORMAL, POST-NORMAL AND PRE-NORMAL CHILDREN

Excluding those who were rejected or not seen
(Numbers in brackets are numbers of cases represented by the percentage)

Relationship of jaws of parents	*Percentage of abnormality in siblings of normal children*	*Percentage of abnormality in siblings of post-normal children*	*Percentage of abnormality in siblings of pre-normal children*
Normal	78·8% (264)	58·9% (219)	90·5% (19)
Post-normal ...	*18·8%* (63)*	*40·3%* (150)*	9·5% (2)
Pre-normal ...	2·4% (8)	0·8% (3)	Nil

*t = 6·20.

It will be noticed that in Tables XVI and XVII there is a difference between the incidence of post-normality in parents and siblings of normal children and in those of post-normal children. This difference is not significant in the fathers (t = 1·86, p = 1 in 16) but is suggestive. Had it been possible to obtain more data about them and had the difference (percentage) remained the same, then it would have been significant. In the mothers this difference is significant (t = 2·80, p = 1 in 200) partly because it is a greater difference and partly because there were more cases. For similar reasons the difference in the siblings is even more significant (t = 6·20).

Earlier loss of teeth occurred in mothers of post-normal children than in mothers of normal children.

This could be explained by the fact that the incidence of post-normality is greater in the parents of post-normal children and when there is post-normality the teeth are more likely to be lost prematurely, particularly in women, for æsthetic reasons.

The association of post-normality is then strongest between the children and their siblings, less strong between them and their mothers, and still less so between them and their fathers. No genetic explanation of this can be put forward and it is suggested that it is caused by environmental factors. It would be expected that any defects of nurture that contribute to produce post-normality would operate equally in the case of siblings as in the children themselves because they are brought up by the same mother. In addition to this children very frequently ape mannerisms and habits of expression or speech from those around them, particularly from older children and to a less extent from their mothers. Further, there is a possibility that among the family traditions for bringing up children that are passed from mother to daughter, but not to sons, may be some that are factors in producing post-normality. These three possibilities would all emphasise an association of post-normality between brothers and sisters and to a less extent between children and their mothers, but would not affect an association between children and their fathers.

We put forward a hypothesis to account for the unexpectedly high incidence of post-normality in the mothers (Table XVI) which is incapable of proof but may have some validity, and is not entirely original [27 and 28]. Mild degrees of post-normality are often characterised by a slight prominence of the upper incisors which gives the appearance of a smile. This expression often provokes an answering smile with the result that the post-normal subject sees smiles in others and the world appears to him or her a happier place than it does to most people. A happy environment cannot but influence the temperament of the subject, particularly when young, and this leads us to suggest that post-normal subjects tend to have a happier disposition than others, thereby giving them an advantage in the quest for a mate. Particularly does this apply to the girl who is the selected rather than the selector.

It must again be emphasised that although post-normality appears to be a family characteristic in many cases, it cannot be assumed that it is a directly inherited character. It is possible that the constant association of children with their parents, and especially with their brothers and sisters, might lead them to ape mannerisms, habits and tastes. It is also possible that other factors which tend to cause post-normality may be inherited. It is only by further extensive research to eliminate every other possibility and to indicate the method of inheritance that a direct hereditary factor could be established.

Appendix

Sucking Habits.—During the collection of data for this survey the authors were impressed by the amount of deformity that sucking habits, particularly of the thumb, cause to the jaws. In most cases the habits start at birth, or soon after, and the majority have a strong desire to suck at any convenient object. If some sort of comforter is not provided then resort is made to the fingers or thumb and nurses often withhold the dummy and substitute the thumb because it is believed that this is the lesser evil. A few cases were found to have acquired the habit at the time of teething or of weaning.

As considerable data were available that might throw light on the problem, it was decided to investigate some of the factors and the 1,033 children were divided into two groups. The first group (431 children) containing those that had never had any sucking habits and the second group (602 children) those that had: it was found that 288 (54·4 per cent of the boys and 314 (61·2 per cent) of the girls had them.

Neither the age of the mother nor the birth rank of the child varied between the two groups. It had been suggested by the nursing staff of the welfare centres that first-born children may tend not to have these habits because they usually have more attention than their younger brothers and sisters. The weight at birth did not differ between the two groups of children. The mothers of children with sucking habits had slightly poorer health during pregnancy, but the difference was not marked.

TABLE A.—HEALTH OF MOTHER DURING LACTATION PERIOD

Health of mother	*Children with no sucking habits*	*Children with sucking habits*
Good	78·2%	73·8%
Fair	16·9%	14·8%
Poor	*6·9%* (30)*	*11·1%* (68)*
Not known	0·2%	0·2%

*t = 2·3.

TABLE B.—DURATION OF BREAST FEEDING

Duration of breast feeding in weeks	*Children with no sucking habits*	*Children with sucking habits*
None	15·5%	18·4%
Less than 3	9·5%	9·0%
3–5	9·5%	11·0%
6–8	7·0%	7·6%
9–11	1·4%	1·8%
12–19	10·0%	14·0%
20–39	37·6% (162)	32·4% (195)
40–59	*9·1%* (39)	*4·3%* (26)
60 and over	*0·5%* (2)	*0·3%* (2)
Not known		0·5% (3)
Total breast fed more than 40 weeks	9·7% (41)	4·6% (28)

In Table A it is seen that more mothers of affected children had poor health at the time of suckling the child and the significance of this is definite (t = 2·3). Fewer children with the habit were breast fed for more than twenty weeks, and significantly less of them were breast fed for more than forty weeks

($t = 3{\cdot}1$) (Table B). More of the affected children were bottle-fed and it seems likely that the reason for the increased use of the bottle was the poorer health of the mother. It is very common to find that a change is made from breast feeding to bottle feeding because the breast milk is of an inadequate standard, possibly due to deterioration in the mother's health. If the breast milk is of poor quality the infant may quite easily be hungry for some time before the change is made. It is suggested that at least some sucking habits may be started during a period of undernourishment when the child sucks its fingers to satisfy its hunger or is given a comforter to quieten it, especially at night. The hunger may be undetected for some time and the signs of it may be masked by the comforter.

No difference was found between the health of the two groups of children at the time of suckling and it would therefore seem that any malnutrition is so mild as to cause no symptoms. The appetite of the children with sucking habits was found not to be depressed, and no association was found with enlargement or infection of the tonsils, but the children did have signs of a narrow upper arch more frequently than others, as would be expected. The overjet of the incisors is very much greater and there is either excessive overbite or an open bite : the lip tone is not affected to any appreciable extent.

Hunger at the time of suckling is then a factor that might play a part in causing these habits. It is probable that there are others, e.g. the suggestion put forward by Salzmann [23] that thumb sucking might in some cases commence *in utero*.

Summary of Report on a Statistical Analysis of Post-normality and its Association with Certain Factors, Carried Out on Pre-school Children.

Equal numbers (500 of each) of children with post-normal and normal occlusion were taken for statistical analysis. It was found that the incidence of post-normality was greater in boys than in girls, being 27·0 per cent in boys and 23·2 per cent in girls. It showed no tendency to decrease between the ages of 2 and 5 years.

Post-normal children are very slightly weaker physically than normal children, but their resistance to illness is as good. The general health of the mothers during pregnancy is as good in the post-normal as in the normal group. There is no reason to suspect that there are any factors in the delivery of the child that might cause post-normality.

Neither the age of completion of weaning, the method of feeding, nor the type of food given before weaning caused any appreciable difference between the two groups. There is no clear evidence that bottle-fed babies show greater post-normal tendencies than those fed at the breast.

Infection of the throat, poor lip tone, open mouth and poorly developed alæ nasi are all characters seen more frequently in post-normal children, but enlarged tonsils were not predominant in this group, as has been suggested by some authorities. More post-normal children were "in fresh air infrequently" and had their mouths open at rest, but there was no difference between the groups in the method of breathing. It was found that only 6 out of 1,033 children breathed exclusively through the mouth.

Sucking habits are very strongly associated with post-normality, particularly when the force exerted is in an antero-posterior direction, that is when the digit is inserted vertically. Although these habits seem very potent there were some children whose jaws showed considerable resistance to an antero-posterior force and remained normal. It would seem then that the effect of these habits depends on the direction of force, the duration and intensity of the habit, and the resistance of the jaws to displacement. Dummies were found to be harmful but not so damaging as thumb sucking.

There is a very strong familiar trend in post-normality, most marked between the affected children and their siblings, less strong with their mothers, and weakest with the fathers ; but the number of fathers seen was too small for this to be firmly established. An explanation of this diminishing association of post-normality is put forward.

It can be seen from this summary that sucking habits form the only major factor at which any preventive measures can be aimed. It was therefore decided to investigate them further and search for factors likely to cause them.

Some evidence was found that mothers of children with sucking habits had poorer health during the sucking period and it is suggested that these habits may be induced in many cases by a mild sub-clinical hunger.

Acknowledgments

A work of this type, requiring access to several thousand children, cannot be carried out without the fullest co-operation from those responsible for the Child Welfare Service. The authors gratefully acknowledge the constant help afforded them by Dr. Jean Mackintosh, Senior Assistant Medical Officer of Health to the City of Birmingham, by Miss I. H. Sinnett, and by the medical and nursing staff of the welfare centres. Their thanks are also due to Professor L. Hogben, Dr. J. Waterhouse, and the staff of the Medical Statistics Department of Birmingham University, to Professor J. M. Smellie, Professor of Pædiatrics at Birmingham University, to Mr. H. Chapman, Miss L. M. Clinch, and Mr. A. J. Walpole Day for advice on the dental examination of the children, to Mr. A. J. Moffatt and Mr. Robert Evans, Ear, Nose and Throat Surgeons, and to Miss B. Crosbie for assistance in the maintenance of records, and compiling the results of the survey.

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THE PROBLEM OF THE CHILDREN[1]

By W. STEWART ROSS, F.D.S. R.C.S.Eng.

So much has been written on the National Health Service in its relation to our profession that I hesitate to offer yet another contribution. I feel, however, that it is important to study the position in which we find ourselves after a year's experience of the Service, because from this we can perhaps foresee what the future may have in store.

As professional men we must take the longest possible perspective, and appreciate that the vicissitudes and anxieties through which we are passing are but the trials of a single generation. An experiment has been attempted in our generation, whether we like it or not, but in it undoubtedly there are the foundations of a scheme which in future generations will be looked upon as a natural stage of evolution.

In the view of most of us, the broad lines of the scheme are fundamentally correct, because it must be accepted, that if we are to have a fit and healthy community, everybody, whether rich or poor, should be able to receive treatment.

If dentistry were a pure luxury or merely of æsthetic value, then we could argue that the wealthy members of the community might be allowed to take advantage of such treatment to the exclusion of their poorer relations, just as a rich woman can be better dressed than her poorer neighbour. But dentistry is so closely related to the general health, comfort and well-being of the patient that such a proposal is unacceptable. It is a fundamental principle of modern life that first and foremost the health of the nation must be cared for. Unfortunately the dental aspect of the National Health Service, however well conceived, rests upon unsound foundations, since no provision is made for treatment of the priority classes. Leaders in our profession, who have studied the problem, pointed out that the scheme as outlined, was not acceptable and their reasoning has proved unfortunately to be well founded.

The unforgivable haste of the politicians, in starting the dental health service whatever the consequences, might be likened to the formation of a company to run a new railway, which held its opening ceremony before the track was soundly laid. The bunting has been hung out and the train started. The all important question is : Can the track now be laid properly without stopping the train ?

A few melancholy statistics of the state of the nation's teeth a few years ago will serve to show how unsound such a scheme is, in its present form, at the present time.

In 1939, the condition of the people's teeth was so bad that it was computed that in the National Health Insurance Scheme, approximately seven teeth were extracted for every one filled and one denture was fitted for every tooth filled. During the war it was found that approximately 96 per cent of the recruits required dental treatment, the majority requiring extensive conservative restoration or extractions. This was in spite of a profession numbering some 12,000 dentists. At that time, owing to the natural shrinkage of the number of our 1921 dental colleagues each year due to retirement or death, the intake of fresh dental surgeons into the profession was barely sufficient to keep the number of dentists on the Register at the same

[1] Presidential Address delivered at the Annual Meeting of the Southern Counties Branch of the British Dental Association, Folkestone, October 8, 1949.

level. During the war the intake of new dental students into our dental schools decreased, so that in 1948, the dental register contained fewer names than in 1939.

A mere 12,000 dentists to attend to the needs of a population numbering some fifty millions, the majority of whom required extensive dental treatment! Approximately one dentist to every four thousand people compared with one to every two thousand in the United States, and yet it has been stated by a high American authority that not 25 per cent of the American nation were receiving adequate and high grade dental treatment in 1940. Indeed it is probable that the ratio of dentists to population in England at the present time is approximately the same as that attained in the United States over a quarter of a century ago.

This then would hardly appear to be a propitious time to introduce a national scheme for free dentistry for the masses. Could a miracle be performed, and a quart be poured into a pint pot? The Ministry was prepared to make the experiment.

The results of the scheme have become apparent to all of us. Queues of patients waiting outside dental surgeries for treatment. Diaries filled up for two, three or more months ahead. Dentists working ten, twelve or even more hours per day. Could these conditions possibly foster sound conservative work, or preserve the health and vigour of the dental surgeon working in perhaps one of the most exacting and tiring of all the professions? And what of the more complicated and skilful corrective methods for preserving the teeth, which have been the aim of the dental profession and which the majority of dental surgeons know should be employed if they had the time?

The Alternatives

It is apparent that the present generation cannot possibly expect the finest dental treatment free of charge from a handful of overworked dentists. They could hardly expect it if the profession were twice as large, since the teeth of the adult population have been so neglected in the past. It is not possible in the interests of posterity to give good free dental treatment to the older generation, but it *is* possible to ensure that the young generation is given that benefit. The nation's children are now being given a better education in the State schools than ever before, but would any one expect that adults should also receive this improved education? It would no doubt be reasonable enough to give adults free treatment for the alleviation of pain and the eradication of sepsis by surgical means, or perhaps a more conservative type of treatment free of charge for those in the lower income groups on the lines of the old Health Insurance Act or that envisaged by a grant-in-aid scheme. But first and foremost is the need and the responsibility to see that the younger generation and their successors should obtain the finest dental treatment it is possible to provide.

In this way dental fitness for the future would be attempted if not wholly attained. It is an unfortunate fact, witnessed by all of us, that since the inception of the Dental Health Scheme, the treatment of our children has not even been maintained at the same level as in 1948; it has actually deteriorated.

The School Dental Service which has slowly been building up its numbers over the years, is now actually working with fewer dental surgeons than it had before the commencement of the National Health Scheme, owing to resignations and the natural choice of the younger graduates to enter the more remunerative private practices. There are many difficulties in the way of giving a rate of remuneration to men in the School Dental Service higher than that which obtains in private practice. These need not be recounted in this paper, but is there no other way of remedying this sad state of affairs now that the National Health Service is in being?

To my mind, there are two courses that could be taken, one of which I am afraid may be unattractive to the majority of my dental colleagues. I refer to dental nurses and the unpopular term, dental ancillaries.

The inauguration of such a service would be of inestimable value to the dentist and patient, always provided that the ancillary workers were allowed to work in the schools only and under the direct supervision of a dental surgeon.

Even with the immediate commencement of such a service, it would be many years before anything like a large enough number could be trained and make their effect felt on the school population. But at least a step would have been taken in the right direction.

In New Zealand the dental surgeons formulated such a scheme, because they believed that therein lay the correct answer to the sparsity of dentists, and their own disinclination to treat children in their own practice. If all the school children in this country were treated by an ancillary service there would still be a shortage of dentists, if the National Health Service continued in its present form, and the best dental treatment was given to all adult patients. Such a service would take very many years to bring into operation successfully, but this is surely no argument against the inception of such a scheme, and at least in this generation, a step would have been taken to procure adequate dental attention for future generations. Failing this, how else can we, as dental surgeons, hope to devise a scheme whereby some attempt is made to supply the pressing need of adequate dental treatment for the children of this country?

A possible way might be for the profession to attend to such needs themselves. This would be

possible of attainment only by numbers of high principled men in the profession undertaking to treat children at specified times at school clinics or in their own surgeries. But firstly there would have to be an alleviation of the pressure of work which at present causes so much time to be spent on adults under the service.

Should our proposal then be to the Government that if some form of grant-in-aid were instituted, thereby cutting down the present state of " free for all " dentistry, that the dental profession would formulate a scheme whereby the children would be treated in the best way possible, having regard to our limited resources ?

I believe that an agreement by the Minister would be welcomed by the profession, and appreciated not only by our own people but by the whole cultured world.

Which of us would refuse to give up half a day a week or fortnight for such a cause, with or without payment ? But there should be no reason why adequate payment could not be given by the Ministry from the saving that would be made by some alteration of the " free for all " scheme which is at present in force.

A dentist working one half-day a week for an example, and there are many of our colleagues devoting such time and more in our teaching hospitals and schools, could cope adequately with perhaps ten new patients per session, and if these children were seen by the same man twice a year, he would be examining and treating 240 cases a year. Many of these children would have little to be done, so that it should not be difficult to look after such a small number per annum.

The first six months would be the most difficult when 240 new children would be inspected and treated. After the initial treatment was completed, however, it would be a matter of keeping their mouths in order. An appropriate starting age would probably be from three to four years, so that a high proportion of the children would be free from caries, and treatment would continue until the school-leaving age was reached.

The advantage of such a scheme would be that at least a start would have been made by the profession on a scheme which affects the whole foundation of the National Health Service, which is now the law of the land.

An additional advantage would be that the experiment could be made in a few selected districts so that it could be tried out and tested before it was made more universal.

An experiment such as this would follow the lines of correct field research, the principle of which few men could discourage, but many deplore its absence in the Health Service.

If ten thousand dentists agreed to treat a limited number of children in this way, nearly two and a half million children would have the opportunity of regular dental treatment and this together with the existing school dental service would go a long way towards the care of the teeth of our five million youngsters.

It is unlikely that such a scheme would be decried by the dental profession or even be beyond the scope of the average dental surgeon, provided that appropriate steps were taken to alleviate the present conditions of overwork.

Such a scheme is only a rough outline of what might appear possible, and there are many who may disagree with its general principles. What does appear manifest, however, is that at the present time the teeth of the children of this country are being neglected, and no National Health Service can be worthy of the name, until this fundamental lapse of statesmanship and common sense is rectified.

The British Dental Association must continue to insist that the care of the teeth of the priority classes is the foundation of any Health Service, for without it, the scheme is unworthy of the great principles that lay behind the Act.

It is to the credit of our Association that it has consistently advised its members to refrain from partaking in the National Health Service as it stands, but it is an unfortunate fact that many of us have been compelled to enter it, against our better judgment.

I believe, however, that the Association must do more. It is evident to all but a few that the scheme in its present form is inadequate. It is time for the setting up of a carefully chosen committee to study the whole problem and to formulate an alternative scheme whereby adequate treatment is given to children and expectant mothers. I say advisedly, it is time. Let us not be too late.

Orthodontic Note

Fundamentals of Anchorage, Force and Movement

THE author says : Teeth in themselves do not constitute anchorage. True anchorage is not available in the oral cavity ; the undisturbed tooth is the best unit of resistance. Occipital or extra-oral anchorage conforms to the true meaning of anchorage as far as stability is concerned. Viability of tissue is of the utmost importance. Gentle intermittent forces are best, with plenty of time for repair. All tooth movements cause injury to tissue. Forces, no matter how gentle, are almost always excessive. Tipping movements predominate. The greater the range of the force, the gentler the force ; the shorter the range, the greater the force. Soreness and looseness of teeth are the best subjective symptom for the correctness of the forces applied. Impatience is the cause of many failures.—ARTHUR C. ROHDE (1948) *Amer. J. Orth.*, 34, 860.

BRITISH DENTAL JOURNAL
JANUARY 6, 1950

LOOKING FORWARD

THE year which is opening will long be memorable in the annals of the profession and the Association. Seventy years after the first incorporation of the British Dental Association it has become, once again, the representative body of the whole organised profession. The first list of members compiled in 1880 contained the names of 252 dentists—a small, if select, body of men who constituted only a small percentage of those in practice. Now, in 1950, the membership is over forty times as great and, what is more important, includes a very large majority of those who are in active practice. The increase in the membership throughout the intervening years supplies a striking index of the growth of the sense of corporate consciousness throughout the profession—a growth which has been fostered no less by the other organisations which have now been amalgamated with the Association as it was by the Association itself. It was twenty years before there were 1,000 members but in the succeeding thirty years before the Jubilee Year in 1930 that number had been quadrupled and by 1949, prior to amalgamation, the total was no less than 8,000. The additions now made to this number by the inclusion of the members of the Incorporated Dental Society and the Public Dental Service Association who were not already members of the B.D.A. raises the membership to an impressive figure. Gratifying as this increase in numbers is, its real importance is to be found in the welding together of the profession into one corporate whole in an Association which can speak for it with unquestionable authority.

This unification could hardly have been achieved at a more opportune time, for it seems certain that during the coming year the profession will be subjected to very considerable stress. It would be idle to disguise the fact that the unprecedented demand for dental service consequent upon the introduction of the National Health Service, coupled with the publicity which has been accorded to the back slidings of a tiny minority of the profession, have resulted in a lowering of the esteem of the profession in the public eye. This is possibly more apparent than real, for there can fortunately be no doubt that the devoted work of the great majority of the profession, who are working for long hours in order to meet the demands made upon them, is properly appreciated by their patients and by those who are in a position to form an impartial judgment. The Report of the Penman Committee and the publicity it received did not a little to emphasise this point and so to counteract the effects of some of the publicity accorded to the cases in which dentists had failed to observe a proper standard of conduct. Quiet, solid, good work may not be news but it is, nevertheless, the most enduring foundation on which to build the reputation of an individual or a profession.

The events of the past few weeks render it possible to look forward to a determined attempt being made to resolve the impasse which has threatened to bring the School Dental Service and the Maternity and Child Welfare Services into a state of virtual breakdown. Much, however, remains to be done before a satisfactory settlement is achieved and the decline in the number of public dental officers can be checked. When that has been accomplished the task of rebuilding the service will have to be undertaken and it seems certain that, whatever may be the outcome of the forthcoming negotiations on salaries, it will be some considerable time before the ground which has been lost during the past year can be regained. And until it is recovered and the priority services are further strengthened, the general dental services will be largely concerned with the treatment of disease much of which could have been prevented. The vicious circle created by the Health Service, against the advice of the profession, must be broken before an effective dental health service can be created. In this matter at any rate the profession can rely upon receiving a measure of public support, for, paradoxical though it may seem, it is precisely those authorities which have hitherto shown but little enthusiasm for the school dental service that are inclined to be the most vociferous in lamenting its decline. It is therefore permissible to hope that 1950 will witness a change for the better.

In the field of hospital service very considerable advances were made in 1949. The attainment of equality in conditions of service between medical and dental consultants and

specialists of corresponding status was in itself an advance, although it has to be regretted that the same principle was not accepted in regard to general dental practitioners holding part-time appointments in hospitals—a distinction which appears on the face of it to be wholly indefensible. The relatively rapid increase in the number of dental appointments to hospitals is an indication of the general recognition of the important part dental attention can play in the treatment of general disease. The days when the work of an honorary dental surgeon to a hospital was almost exclusively confined to the extraction of teeth for out-patients are rapidly passing, although the heavy calls on private practitioners have tended to obscure the change by diverting to hospitals some part of the demand for emergency treatment. This undesirable tendency will need to be checked, particularly in the case of dental teaching hospitals if they are to perform their proper functions to the greatest advantage.

Post-graduate study and higher qualifications are subjects closely linked to that of hospital service and it is encouraging to note the increase in both the number and variety of courses which are available and the number of dentists who are taking advantage of the opportunities which have been provided to increase their knowledge.

Surveying the field broadly it can be said that never before in the history of the profession in this country was the demand for dental treatment of all kinds—for children, adults and in hospitals—so widespread. It is also true to say that, in spite of the denigration of the profession in certain quarters, its services are now more generally appreciated than they have been in the past. The immediate future has many difficulties in store but it is permissible to look forward to a still greater extension of the usefulness of the profession as the years go by. In that process the reconstituted British Dental Association is in a position to play a decisive role.

NOTES AND COMMENTS

Research in Hospitals

THE Ministry of Health have issued a circular, R.H.B.(49)145, regarding their policy in connection with the promotion of medical research in hospitals. Section 16(1) of the National Health Service Act, 1946, extended the Minister's power under the Ministry of Health Act, 1919, to conduct or help others to conduct research on most aspects of disease, including prevention; and Regional Hospital Boards, Boards of Governors, and Hospital Management Committees have power to conduct, but not to help others to conduct, research also. It has been the practice of the Ministry in the past to promote only such investigations as could best be done within the framework of the health services for which they are responsible, leaving to the Medical Research Council the wider and longer-term problems. In the Minister's view and in that of the Medical Research Council this division of functions is still appropriate. He asks boards and committees not to promote any new research involving additional expenditure from their ordinary budget without his prior approval, in order that he may consult the Medical Research Council and ensure a proper measure of co-ordination. As far as research financed from " free monies " is concerned, he has no desire to interfere with the discretion of boards and committees, but would be glad if they would indicate each year what projects are being financed in this way and the expenditure involved.

World Health Organisation Fellowships

THE World Health Organisation (W.H.O.), to which the International Dental Federation is affiliated, offers a small number of Fellowships to medical and dental practitioners and State registered nurses who are engaged in the health services, medical education or research in the United Kingdom. The Fellowships may be resident or travelling. The former may be for a period of up to twelve months, the Travelling Fellowship, will be of shorter duration and are intended for senior men and women holding responsible appointments. Dentists who desire to apply for Fellowships should communicate with the Secretary, Ministry of Health, Whitehall, London, S.W.1, giving particulars of their qualifications, experience and their proposed programme and duration of study. Applications should be accompanied by the names of two referees and should reach the Ministry of Health not later than January 31, 1950.

The Clove Tree

IT is possible that cloves as a remedy for toothache can claim a more remote antiquity and has maintained its place longer than any other drug in the British Pharmacopœia. As a spice, as a flavouring, as perfume, decoration in gardens, in palaces or the dwellings of the lowly, it must rival the rose in length and the steadfastness of its popularity. These and many other interesting facts are recounted in " The Clove Tree" by G. E. Tidbury.[1] The tree, a species of myrtle, is prolific in the production of flower buds a little over $\frac{1}{2}$ inch long with a cylindrical calyx, at the end of which are four sepals and a ball formed of the unopened petals. These are the cloves, so named from their resemblance to a nail (O.F. clou). Originally growing wild these trees are a source of

[1] Crosbie and Lackwood, Ltd., London.

wealth long exploited by the Dutch in the indigenous environment of the Spice Islands. The Mohammodans are credited with the spread of the use of the clove across the world and the industry has passed to Zanzibar. Two crops of flowers a year produce enough to furnish 12,000 tons of cloves. It seems that Zanzibar is an unnatural environment which has encouraged two diseases of special concern "die back" and "sudden death." In spite of intensive investigation into causes such as water logging of soil, naturally poor soil, soil impoverished by long cultivation, competition from weeds and fungi the diseases remain obscure.

Fifty Years Ago

From the "Journal of the British Dental Association," January 15, 1900.

These meetings are largely attended, especially the "Demonstration Meeting." The object of the Branch is to carry on the work and further the interests of the Association within its district. It may fairly claim to have carried on the work in a satisfactory manner, since it has steadily grown till, on December 31 last, its members numbered two hundred and three, forty-three of whom were elected during 1899; thirty of these being new members of the Association.

From a report on the work of the Metropolitan Branch.

LETTERS TO THE EDITOR

THE BENEVOLENT FUND

SIR,—The Benevolent Fund Committee of the Southern Counties Branch is organising a drive for new members and to ask for increased subscriptions from present ones by the form of covenant. It is hoped to write to all S.C.B. members, but in case there are some who may not be so approached, may I be allowed to explain briefly.

Income tax refund can be obtained, by the Fund, from the authorities if a seven years' covenant is signed.

Thus a subscriber's 11s. produces £1 for the Fund, 33s. produces £3 and 66s., £6.

This method of contributing does not mean greater cost to the subscriber, only more money to the Fund.

The need for a steady income by the Benevolent Fund and its object need hardly be stressed. Many today are more fortunate than hitherto and we should not lose sight of our duties and responsibilities to those of our colleagues and their dependants who are unable by the many mischances of Fate to enjoy that good fortune.

We do not suggest any specific amount, but believe that the annual gift of, by covenant, the approximate cost of two fillings 33s. will be ungrudgingly given by any new members and that present subscribers who subscribe less than that amount will make up their contributions to that sum.

If every member of the S.C.B. will do this we can guarantee an income, from this branch, of well over £3,000.

I shall be happy to give full information or send covenants to anyone who will write to me.

Rosslyn,
Woking.

Yours faithfully,
G. RICHARDS-SMITH,
Chairman Benevolent Fund Committee, Southern Counties Branch.

DENTAL PAIN

SIR,—With regard to Mr. Lucas's observations on dental pain, I find myself at divergence with several of his statements. In particular I disagree with him on the following points:

(*a*) I have found that patients respond very commonly to pressure on intra-osseous injection.

(*b*) Whenever I have obtained proper anæthesia with the use of procaine hydrochloride, thermal sensation has been abolished. However, sometimes I do not obtain anæsthesia or only acquire partial anæsthesia or rarely hypersensitivity. In these cases my technique has invariably been faulty or, in the case of anterior maxillary teeth, possibly due to abnormally dense cortical bone, there has been improper infiltration. In all of the cases mentioned a second injection, either of an alternative type or with more regard to the width of the ramus or some other detail, has been successful.

(*c*) A maxillary block *via* the greater palatine canal is extremely effective and I use it now in preference to any other when doing extensive conservative work.

(*d*) Lastly, I find very little reaction to oxyphosphate cement if it is not used in too runny a consistency, and is slightly warm. It requires speed of working to use a warm slab but its use seems to prevent pain when using oxyphosphate cement.

Westwood,
120, *Southbourne Road,*
Bournemouth.

Yours faithfully,
G. E. RAY.

COCAINE AS A LOCAL ANÆSTHETIC

SIR,—Mr. Angelman is mistaken in thinking that "it was not until the turn of the century that cocaine was used in this country" for I was using it at some time during my student days at Leicester Square which ended in 1887.

In my enthusiasm for the novelty I was in the habit of carrying some about with me, and a syringe, ready to take advantage of any chance extraction that might come in my way when, dosage in those days being doubtful, I would cheerfully inject 1 grain, happily without fatal results, and I continued to use it (in smaller doses) in private practice until the introduction of novocain.

Prior's Close,
Walsham-le-Willows,
Bury St. Edmunds, Suffolk.

Yours faithfully,
J. H. BADCOCK.

DENTAL CONDITION OF GERMAN CHILDREN

SIR,—It was with great interest that I read the article on dental health of 5-year-old German children by Helen Mellanby.

One would not expect the nutritional difficulties to be dentally obvious in the children selected for examination at Wuppertal, as the deciduous dentition would have been developed and for the most part erupted before the onset of the deficiency. More interest dentally would be expected if the same group could be inspected in 1955 when the permanent dentition developing over the period of deficiency would have erupted.

Westwood,
120, *Southbourne Road,*
Bournemouth.

Yours faithfully,
G. E. RAY.

Reviews and Abstracts

DENTAL CARIES. CLINICAL AND EXPERIMENTAL INVESTIGATIONS. By T. Ockerse, D.M.D., D.D.S. Dental Health Officer, Department of Health, Pretoria. Issued by the Department of Health, Union of South Africa, 1949. Pp. 80.

Dr. Ockerse's book is a thesis submitted for the degree of D.Sc. in the University of Pretoria. It contains accounts of his own investigations, and these will be studied with much care by all who are interested in the ætiology of dental caries. Of less interest to those readers will be his description of tooth development, and his brief summaries of the views of different investigators regarding the part played in caries production or inhibition by the vitamins, certain mineral elements, carbohydrates, proteins and ductless glands, particularly as he seldom indicates which of two or more conflicting views seems to him to carry most weight.

Dr. Ockerse has recorded the incidence of caries in children of European descent in a great many districts of South Africa. His findings are given in terms of the percentages of children found to have caries, and not in terms of D.M.F. teeth per child. The highest caries incidence areas are in the southern coastal region, and he records that in certain districts a little to the west of Port Elizabeth "the majority of the people become edentulous before they reach the age of 15 years." The lowest incidence was found among children in the sheep-raising areas of the Karroo, the north-west Cape and Northern Transvaal. In the north-west Cape the percentage of children affected by caries was 40 per cent, compared with 99 per cent in the Knysna district.

The subjects which seem to have interested Dr. Ockerse most are the influence of fluorine and the hardness of drinking water. There are many endemic fluorosis areas in South Africa—the majority being in the Cape, and none in Natal. A point of particular interest is his statement that of children with mottled enamel only 28 per cent had caries, whilst of the children with no mottling in the endemic area 69 per cent had caries. This conflicts with the findings of other investigators who have found the incidence of caries to be substantially the same in children with mottling as in children with no mottling living in the same endemic area.

A large part of the book is devoted to accounts of experiments in the production of rat caries. One of the principal points investigated was the possibility of heredity being an influence in the production of caries. It was found that mother rats receiving a high-carbohydrate, low-protein diet during pregnancy and lactation had offspring with a very much higher caries incidence than the offspring of mothers receiving a low-carbohydrate, high-protein diet. In certain of these rat feeding experiments the inhibiting effect of 100 p.p.m. of fluorine in the drinking water was well established, while 5 p.p.m. produced little effect—an indication that rats are much less sensitive than human beings are to fluorine.

The book is beautifully produced and is a pleasure to read. On page 57, however, the account of rat groups XX and XXI does not make sense, and it appears as if some sentences have been unintentionally repeated.

Neuroma of the Mandible.—M. J. Oringer reports a case of a male patient aged 34 complaining of paræsthesia of the lower lip and half of the face on the right side. The area from which the lower first molar had been extracted was very painful, any slight touch of food or pressure produced exacerbations of pain. The extraction had been difficult, the bone being chiselled away to remove the roots in fragments. Radiograms revealed radiolucence over the area. The area was opened up, the tough fibrous tissue removed, showing perforation of the canal into which the tissue was growing; the fibres forming the attachment to the contents of the canal were carefully severed and the whole mass removed with a portion of the gum. The margins of the perforation were freshened and the perforation filled with sterile gelatin. Microscopic examination proved the presence of nerve fibres, the whole resembling the neuroma of amputation—resulting from trauma to the mandibular nerve, the nerve fibres proliferating to the gingival surface. The patient reported freedom from pain and a return of sensation to the lip.—*Oral Surgery, Oral Medicine and Oral Pathology*, 1948, **1**, 1135.

The Condition of the Teeth and Attachment Apparatus in Tuberculosis.—Although tuberculosis is a very common disease there is very little in the dental literature relating to the role of dentistry in the treatment of tuberculous patients. Generally speaking the treatment of tuberculosis is diet, rest and sunshine. It is impossible for the full benefit of a diet to be obtained if the patient lacks a sound and efficient masticatory apparatus. Rest is impossible if the patient suffers from dental discomfort or toothache. Some investigators have held the view that there is a characteristic oral disturbance in tuberculous patients and that cervical caries and erosion are more common among them. Others have denied this. 200 patients of ages from 16 to 66, suffering from pulmonary tuberculosis, were examined. Cervical caries and erosion were not particularly common among them, nor was there a higher incidence of caries than among non-tuberculous persons. There was a high incidence of healthy parodontal tissues with slight recession which did not suggest that these patients are particularly susceptible to parodontal disease. It is acknowledged that the number of cases examined is too small to warrant dogmatic conclusions.—I. E. GRUBER (1949) *J. dent. Res.*, **28**, 483.

Tobacco and Gingivitis.—From an examination of 5,690 Danish Royal Marines, 568 of whom were non-smokers, it is concluded that there is a correlation between the consumption of tobacco and the amount of calculus, and between the presence of calculus and gingivitis. The statistical analysis suggests that tobacco has an effect, *per se*, on the gingival tissues, apart from the effect produced by the calculus. A significantly greater deposit of calculus was observed in pipe smokers than in cigarette smokers.—J. J. PINDBORG (1949) *J. dent. Res.*, **28**, 460.

Analysis of the Unstable and Ill-Fitting Artificial Denture.—This is an excellent paper written on the subject for the general practitioner. The author writes: "All shortcomings in the stability and the fit of a denture may be directly attributed to (1) overextension of denture margins, (2) underextension of denture margins, (3) pressure areas, (4) void areas, (5) faulty tooth placement, (6) inaccurate jaw relation records and faulty occlusion, (7) anatomic and physiologic shortcomings of the jaws, or, (8) faulty laboratory procedures". Under each of these headings follows a short, but adequate discussion which would well repay reading, but cannot adequately be treated in an abstract.—NATHAN H. RAYBIN, *J. Amer. dent. Assoc.* (1949) **39**, 177.

THE HEALTH SERVICE

DENTAL TECHNICIANS

Scale of Salaries in the Health Service

The following scale of annual salaries for dental technicians employed by Regional Hospital Boards and other authorities in England, Wales and Scotland in the Health Service has been agreed by the appropriate Whitley Council (Professional and Technical Council B).

(A) *Apprentice*

1st year	£80
2nd year	£93
3rd year	£112 10s.
4th year	£151 10s.
5th and subsequent years	£184

(B) *Dental Technicians*

The all-round craftsman who normally has completed 5 years apprenticeship and who is able to undertake the ordinary processes of a dental laboratory without direct supervision.

£340 × £10 — £360 × £15 — £420

(C) *Senior Technician*

The dental technician who, in addition to being a good all-round craftsman, is specialised in and is able to carry out crown and bridge technique of an advanced nature or orthodontic work, and is called upon to carry out such work.

£400 × £15 — £490

(D) *Senior Technician in Charge*

The dental technician who is in charge of a technical staff of not less than one and not more than five dental technicians.

£420 × £15 — £510

(E) *Senior Technician (Surgical)*

The dental technician who has exceptional skill in the construction of maxillo-facial, plastic or general surgical appliances and is normally employed on such work.

£420 × £15 — £480 × £20 — £540

(F) *Chief Technician*

The dental technician who is in charge of a total technical staff of 6 or more.

Total technical staff 6 - 13.

£430 × £15 — £490 × £20 — £550

Total technical staff 14 or more.

£480 × £20 — £620

London Weighting

In the Metropolitan Police Area all scales to be subject to London Weighting on the following basis :

Age 16 - 20	£10
Age 21 - 25	£20
Age 26 and over ..	£30

Working Hours.—The normal hours of duty are 39 hours a week exclusive of luncheon interval.

The conditions relating to overtime, holidays and sick pay are fully set out in the Circular (PTB 2) issued by the Whitley Councils for the Health Services (Great Britain).

The rates of pay set out in the circular do not apply to technicians employed by private practitioners. Those rates are determined by the National Joint Council for Dental Technicians, they were set out on p. 67 of the Supplement to the *B.D.J.*, December 16, 1949.

QUESTION IN PARLIAMENT

Hull and Beverley.—The Parliamentary Secretary to the Ministry of Health was asked whether he would consider compensating people living in Hull and Beverley who had been unable to obtain treatment under the Health Service due to the fact that, for the past three months, the majority of local dentists had withdrawn from the National Service pending the settlement of matters in dispute.

Mr. Blenkinsop, in a written reply, said "No".

Dental News

THE ROYAL FACULTY OF PHYSICIANS AND SURGEONS OF GLASGOW

PART of the celebrations of the 350th anniversary of the forming of the Royal Faculty of Physicians and Surgeons of Glasgow, is the exhibition " Medicine in History" at the Art Gallery of the Corporation of Glasgow. Portraits of great men, notably of Vesalius by Titian, William Hunter, Sir William Macewan, James Syme and others, lead the visitor to other exhibits, books on medicine, are of special interest. Pharmacy is well represented. Pharmacy jars have a fascinating and irresistible attraction for a collector, on account both of their artistic as well as their historical interest. This part of the exhibition includes articles connected with the barber's and nursing arts, bleeding bowls and sick room equipment being among the exhibits.

The dental side, as might be expected, is represented in the well-chosen instruments, and their description from an historical point of view by Mr. J. Menzies Campbell, who has taken pains to give a brief outline of the dental art from ancient times, adds greatly to their interest. That the ancient Faculty of Physicians and Surgeons of Glasgow has not stood still in time is shown by the section on radiology and its development.

In the section devoted to the development of hospital service the Lister exhibits are of outstanding interest. Many of Lister's personal articles, his frock coat, his gown and hood, some of his instruments and dressings, his operating table, his plaster carbolic dressing, attract attention. The exhibit includes a letter proving that it was after coming to Glasgow that his interest in antisepsis began. Other exhibits of great interest are the prints and photographs showing the Lister wards. As a further development and inspired by Lister's work is that of Sir William Macewan who improved on it by the introduction of asepsis. As is most right and proper the principal exhibit is that which is reserved for the founder of the Faculty, Master Peter Lowe (1550–1610). To his activities is owing the Charter which he obtained from King James VI which gave Lowe and Robert Hamilton "and their successors indwellers of our city of Glasgow" the power to examine and license all professors of medicine. A reproduction of the portrait of Lowe in the Hall of the Royal Faculty with other personal exhibits, his books and photostats of his testament, and other matters of interest are indeed a temptation to lovers of the history of the healing art to visit Glasgow before this exhibition closes on January 31, 1950.

SALARY INCREASES FOR P.D.O.s

OLDHAM Corporation, reversing a decision of the Establishment Committee, have agreed to give their dental officers a temporary bonus of £100 per annum, pending a national decision on salaries. Opposing the motion Alderman Kenyon said that if the bonus was paid some of the dental officers would receive more salary than some heads of departments. Aberdeenshire Finance Committee have also approved increases of £100 in the salaries of their dental officers pending a national settlement.

DENTIST AS HIGH SHERIFF

Mr. E. Davies-Thomas, L.R.C.P., M.R.C.S., L.D.S. Eng., has been nominated for the office of High Sheriff for Cardiganshire, his native county. Mr. Davies-Thomas is Chief Dental Officer, Birmingham Education Committee, and Senior Consultant Dental Surgeon, Birmingham United Hospitals.

DENTIST SENT TO GAOL

HOWARD LLOYD BEVAN of Llandoff was found guilty at the Glamorgan Assizes on nine counts of obtaining money by false pretences under the National Health Service. He was sentenced to two years imprisonment and ordered to pay £250 towards the cost of the prosecution. In his defence Bevan said that the false entries on the forms were due to mistakes made by his wife who made out the claims. It was stated in Court that Bevan had been paid £10,874 14s. 2d. in the first six months of the Health Service and had treated 939 patients. His Counsel said that Bevan's normal working day had been from 9 a.m. to 9 or 10 p.m. This was the second time Bevan had been tried, the jury having failed to agree at the first hearing.

The Services

NEW YEAR HONOUR

THE list of appointments to the Military Division of the Order of the Bath conferred by the King in the New Year Honours includes the name of Major-General H. J. Higgins, *O.B.E.*, F.D.S., R.C.S.Eng. Director of the Army Dental Service who is created *C.B.*

Royal Navy.—The following promotions have been made to date from December 31, 1949.

Surgeon Commander (D) to Surgeon Captain (D) :—C. J. Finnigan (Acting Surgeon Captain (D)), D. L. Simpson.

Surgeon Lieutenant-Commander (D) to Surgeon Commander (D) :—W. J. Wolton (Acting Surgeon Commander (D)), K. E. J. Fletcher, A. F. Ferguson (Acting Surgeon Commander (D)), S. J. Atkinson.

The Schools

London Hospital Dental School.—The following appointments have been made : J. S. Beresford, B.D.S.N.Z., H.D.D.Ed., Part-time Senior Assistant, Orthodontic Department ; N. Livingstone Ward, L.D.S.Lpool., D.D.S.N.U., Senior Assistant to the Director of Conservative Dentistry ; J. G. Pollock, L.D.S.Eng., Senior Assistant to the Director of Prosthetic Dentistry.

London Hospital Dental School.—The Annual Dinner of the London Hospital Dental Society was held at the London Hospital Medical College on Friday, November 25. Mr. S. G. Allen, the President of the Society, was in the Chair and among the distinguished visitors present were Professor Robert Bradlaw and Mr. H. L. Hardwick, the Dean of the Royal Dental Hospital.

Professor Bradlaw replied with a crisp and witty speech to the toast of the Guests, proposed by Mr. G. T. Hankey.

In responding to the toast of the Dental School, Mr. A. M. Horsnell, the Dental Sub-Dean, referred to the project for extensions to the School, the implementation of which had been beset by many difficulties, but of which the first stage, that of the reconstruction and re-equipment of the Conservation Room was now nearing completion. It was hoped that the second stage, the building of an additional storey to the present building, would be completed next year.

The Dinner was very well supported by many past and present students and members of the Staff of both Dental School and Hospital.

University of Birmingham.—Mr. W. C. B. Kitchen retired from the post of Senior Instructor in Dental Mechanics on December 31. "Kitch" will be remembered with respect and affection by all past students of the Birmingham School who learnt their mechanics under him: and their numbers will be many since he held this post for 31 years.

A testimonial fund has been opened and it is hoped that all old Birmingham students will subscribe. Donations not exceeding one guinea should be sent to the Director of Dental Studies, Medical School, Hospitals Centre, Birmingham 15, not later than January 31, 1950.

Examination Results

University of Bristol.—*Final L.D.S.* : D. C. Berry, G. D. Pamely.

University of Durham.—*Final B.D.S.* : T. Charlton.
Final L.D.S. : H. Dresner, J. F. Hamilton, I. A. Jadwat, Norma Russell, S. J. Smithson, G. P. Suffield.

University of Manchester.—*Final B.D.S. Second Class Honours* : W. G. Thomas ; *Pass:* R. Bolton, K. Clark, F. A. Cropper, J. F. Higson, A. L. Hutton, J. B. Millar, A. E. Samji.
Final L.D.S.—N. Brindle, A. H. Johnson.

Obituary

CHARLES SCULTHORPE MORRIS, *C.V.O.*, F.D.S., M.R.C.S.Eng., L.R.C.P.Lond.

WE regret to record that Mr. C. S. Morris *C.V.O.*, Sergeant Surgeon-Dentist to His Majesty the King, died in Nairobi, a few days before Christmas.

The son of Captain George Bentham Morris, R.M.L.I., C. S. Morris was born at Tauranga, New Zealand, in 1875. After receiving his early education in New Zealand he entered Guy's Hospital as a dental student, taking his L.D.S. in 1900, and the conjoint diploma in 1904. He was appointed Demonstrator of Practical Dentistry to the Dental School in 1901, which post he held until 1905, when pressure of work outside decided him to give it up. Had he chosen partly an academic career and stayed on at the Hospital he would undoubtedly have been a prominent teacher.

Tall and good-looking, he was an outstanding student at Guy's where he was regarded as a man of independent thought, accustomed to scrutinising the teaching offered him before accepting it. But once he had accepted it he put it in to execution with all his might. A skilful operator, he strove unremittingly to improve both his craft and his craftsmanship, nothing less than the best would satisfy him. A devout Christian, his religion was the ruling force in his life, and his faith found expression in his sympathetic treatment of his patients and the conscientious perfection of the work he did for them.

He early established himself in practice in the West End and was successively appointed Surgeon-Dentist and Sergeant Surgeon-Dentist to His Majesty the King, his services being recognised by his creation as *C.V.O.* in 1943. In 1947 he was elected by the Royal College of Surgeons of England as a Fellow in Dental Surgery. He joined the B.D.A. in 1905 and was President of the Metropolitan Branch in 1946.

He married, in 1914, Frances Mary Alicia Burton and there were two daughters of the marriage.

A FELLOW STUDENT writes :

"C. S. Morris as I knew him at Guy's was a prominent member of the Christian Union and actively endeavoured to spread its tenets amongst his fellow students. We all admired his devotion to his art, and few of us ever reached the heights of operative skill and technique that he achieved.

"He was an enthusiastic follower of Baldwin's technique for amalgam fillings ; those who had the opportunity of seeing his demonstration of gold inlays towards the end of his practising life, felt that the zenith of that procedure had been reached."

LT.-COLONEL WILLIAM THOMAS FINLAYSON, *O.B.E.*, L.R.C.P.&S., L.D.S.Edin., L.F.P.S.Glasg.

IN the passing of W. T. Finlayson, the profession in Scotland and Edinburgh in particular, has lost a member with a long and distinguished career.

Finlayson possessed a great charm of manner. this, and his readiness to help those seeking help or advice, endeared him to the hundreds of students who passed through his hands.

One of the outstanding students of his day, he took his "Triple" in 1900 and became house-surgeon at the Edinburgh Dental Hospital.

On the outbreak of World War I he offered his services to the Army and was granted a commission in the R.A.M.C.

On the formation of a Dental Service (Gen. List) in 1915, he became one of the first dental officers and in view of his administrative and professional ability was earmarked for early promotion. He was appointed Inspecting Dental Officer for Scottish, Northern and Western Commands and held that appointment until he retired.

For his outstanding services he was awarded the *O.B.E.*

On retirement from the Army he returned to the Edinburgh Dental Hospital as Tutor in the Conservation Department, but had unfortunately to give up this appointment later on account of ill-health.

All those who knew him will extend to his widow and family their heartfelt sympathy in their great loss.

ALONZO MILTON NODINE, L.R.C.P.Lond., M.R.C.S.Eng., L.D.S.Eng.

NODINE died on December 1, 1949, and the dental profession suffers a severe loss by his passing. Before the 1914-18 war he practised in New York, being a D.D.S. of New York University. He came to England about 1917 with the American Red Cross, and after the war returned here from France, practising in the South of England. He came to London and settled in Manchester Street, later moving to Harley Street. He took the L.D.S. Diploma in 1923. By that time he had established himself as a consultant and oral surgeon and lectured to dentists everywhere on local anæsthesia and oral surgery.

He qualified in 1930 as M.R.C.S., L.R.C.P. and firmly established himself as one who was able and willing to undertake items of treatment which dentists did not then care ordinarily to perform in their own surgeries. Perhaps the most interesting feature of his work was that he performed it almost invariably under local anæsthesia. He was a member of the little select band of oral surgeons who formed the club which still exists. He was Consulting Dental Surgeon to King George's Hospital, Ilford.

He was a personality in the sense that all who came into contact with him recognised his worth though he sought no prominence, preferring to give service of the most valuable kind to his professional colleagues. He was a pioneer in the use of the mandibular injection and his book "Minor Oral Surgery" deals mainly with that subject.

Nodine was a lovable individual to whom many dentists turned for the solution of their problems, and they never sought his help in vain.

A Christian Scientist, he was, however, something more beside—student, lecturer, able practitioner, surgeon and friend. Those who had the privilege of knowing him will miss his kindness, efficiency and his love for his fellow men.

The Charge for Announcements of Births, Marriages and Deaths is 2s. 6d. per Line. (Approximately 8 words.) Minimum 7s. 6d.

Births

OLIVER.—On December 12, 1949, to Una (*née* Leigh), L.D.S., wife of Bernard Oliver, L.D.S., a daughter.

STANHOPE.—On December 19, 1949, at the Fielding Johnson Private Hospital, Leicester, to Simone (*née* de Lestang), wife of Major E. D. Stanhope, *M.B.E.*, H.D.D., R.A.D.C., a son.

Marriage

BEALES—BURGESS.—On December 10, 1949, at South Molton, Devon, Clifford Maxwell Beales, L.D.S. R.C.S.Eng., of 6 The Broadway, Woodford Green, Essex, to Ruth Trant Burgess, M.C.S.P., of South Molton.

Our Diary

Tuesday, January 10.

East Lancashire and East Cheshire Branch.—Medical School, Manchester, 13, 7.30 p.m. Lectures and Films on Dental Anæsthesia: Dr. W. S. McConnell.

Thursday, January 12.

Brighton and District Section.—"The Ship Hotel," Hove Street, Hove, 8 p.m. "Some Modern Minor Oral Operations," Dr. G. G. Exner.

Tuesday, January 17.

Bristol and District Section.—Weston Hotel, Bath, 7.30 p.m. "A New Approach to the Study of Tooth Form and Articulation," A. O. Chick.

Wednesday, January 18.

British Dental Association Photographic Society.—13, Hill Street, Berkeley Square, London, W.1, 7 p.m. Discussion on Photographic Problems.

Wessex Branch.—White Hart Hotel, Salisbury, 8 p.m. Dinner, 6.30 for 7 p.m. "Modern Trends in the study of Sinus Infections," Dr. T. Summerville.

Friday, January 20.

Metropolitan Branch—South Eastern Section.—Woolwich War Memorial Hospital, Shooters Hill, 8 p.m. Coffee, 7.30 p.m. "Preventive Orthodontics and Dental Pediatrics," G. Scott Page.

Monday, January 23.

The Royal Society of Medicine—Odontological Section.—1, Wimpole Street, London, W.1, 5.30 p.m. "Oral Pathology in Children," Professor J. Boyes.

Tuesday, January 24.

Croydon and District Section.—Y.W.C.A., Lansdown Road, Croydon, 8.15 p.m. "Some Aspects of Periodontology," P. A. Trotter.

Preston, Leyland and Chorley Section.—Starkie House, Starkie Street, Preston, 7 p.m. "Provident Societies, Sickness and Accident Insurance," P. E. Grundy.

Thursday, January 26.

Central Counties Branch.—Midland Hotel, New Street, Birmingham, 7 p.m., preceded by Council Meeting, 6 p.m. "Quo Vadimus?" or Whither Are We Going?" Professor E. Matthews.

Friday, January 27.

West Kent and District Section.—Wrotham Park Club, 8.15 p.m., preceded by Informal Dinner, 7.30 p.m. Discussion on Pulpless Teeth. Openers: Professor W. E. Herbert and C. B. de Vere Green.

Saturday, January 28.

Representative Board.—10 a.m.

Tuesday, January, 31

Metropolitan Branch.—Eastman Dental Clinic, Gray's Inn Road, W.C.1, 7.30 p.m.; "The Antrum as it affects the Dentist," R. Sutton Taylor.

Thursday, February 2

Public Dental Officers' Group—North Western Division.—Town Hall Annexe, Manchester, 2.30 p.m.; "Résumé of Mechanical Therapy in Orthodontics," N. Wild.

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BRITISH DENTAL JOURNAL

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